

CONSTRUCTION PLANS

RANCH TRAIL COMMERCIAL BUILDING

9/20/2023

365 RANCH TRAIL  
LOTS 18 & S PART OF 19, BLOCK A, RAINBOW ACRES  
ROCKWALL COUNTY, TEXAS

GENERAL NOTES (All Disciplines)

1.

PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE CONTRACT DOCUMENTS, SPECIFICATIONS AND PLANS INCLUDING ALL NOTES, THE ROCKWALL SPECIFICATIONS AND ANY OTHER APPLICABLE STANDARDS OR SPECIFICATIONS RELEVANT TO THE PROPER COMPLETION OF THE WORK SPECIFIED. FAILURE ON THE PART OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH ALL STANDARDS OR SPECIFICATIONS PERTAINING TO THIS WORK SHALL IN NO WAY RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMING THE WORK IN ACCORDANCE WITH ALL SUCH APPLICABLE STANDARDS AND SPECIFICATIONS.
2.

CONTRACTOR SHALL HAVE IN HIS POSSESSION, PRIOR TO CONSTRUCTION, ALL NECESSARY PERMITS, LICENSES, ETC.
3.

ALL WORK SHALL CONFORM TO ROCKWALL STANDARDS OF DESIGN AND CONSTRUCTION AND ANY WORK WITHIN TXDOT RIGHT OF WAY SHALL CONFORM TO TXDOT STANDARDS AND SPECIFICATIONS, UNLESS OTHERWISE INDICATED ON APPROVED PLANS.
4.

IF AN ITEM IS NOT COVERED IN THE ROCKWALL SUBDIVISION REGULATIONS, THE CITY ENGINEER'S DECISION SHALL APPLY. IN CASE OF CONFLICT WITH THE ROCKWALL SPECIFICATIONS, THE DESIGN ENGINEER SHALL BE NOTIFIED TO PROVIDE CLARIFICATION.
5.

CONSTRUCTION INSPECTION MAY BE PERFORMED BY REPRESENTATIVES OF THE OWNER, ENGINEER, GEOTECHNICAL ENGINEER, AND REVIEWING AUTHORITIES AND AGENCIES. UNRESTRICTED ACCESS SHALL BE PROVIDED TO THEM AT ALL TIMES. CONTRACTOR IS RESPONSIBLE FOR UNDERSTANDING AND SCHEDULING REQUIRED INSPECTIONS.
6.

CERTAIN CONSTRUCTION STAKING MAY BE PERFORMED BY THE OWNER'S ENGINEER. SEE THE CONTRACT DOCUMENTS FOR DETAILS OF THIS SERVICE.
7.

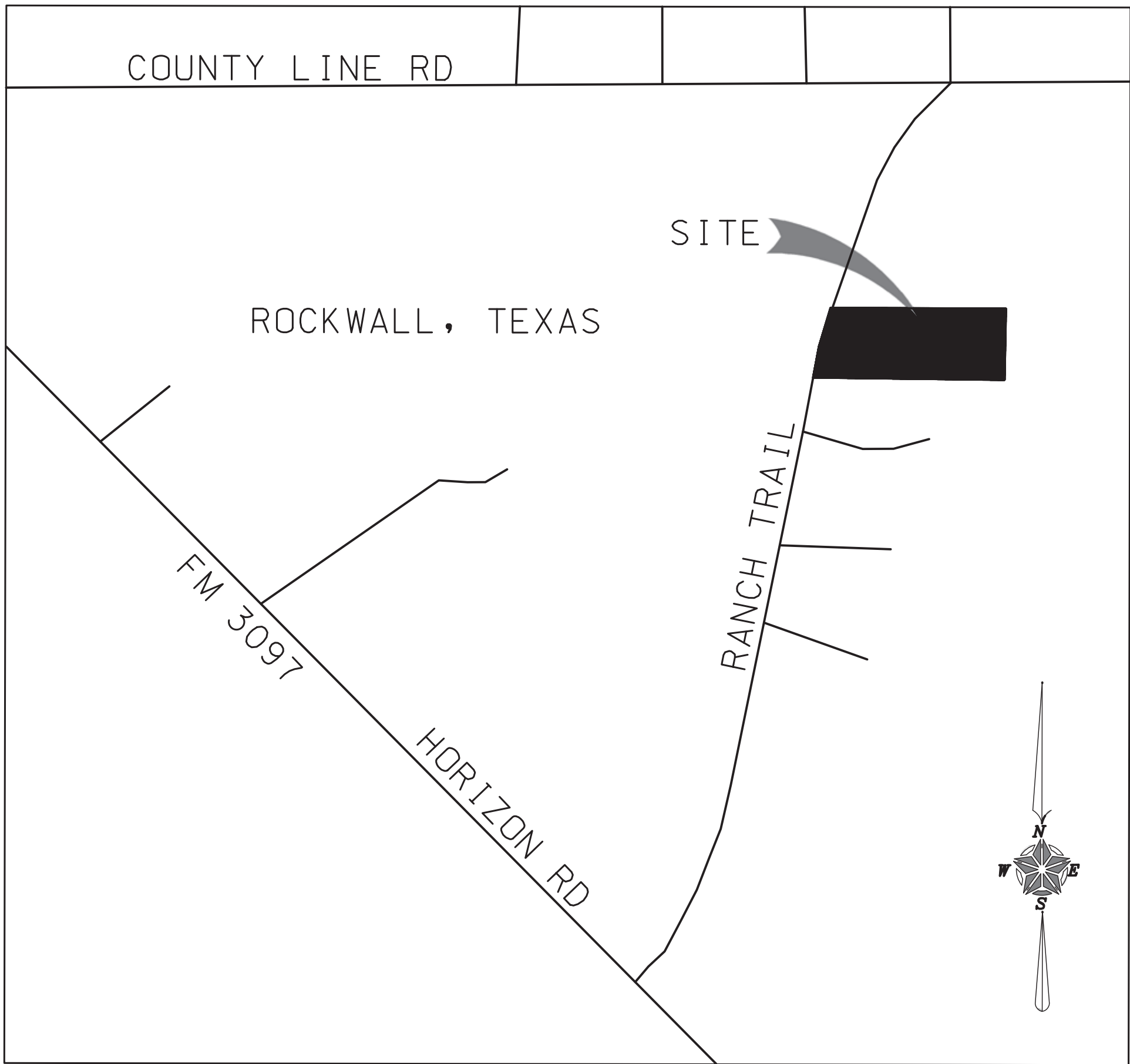
IF UNFORESEEN PROBLEMS OR CONFLICTS ARE ENCOUNTERED IN THE CONSTRUCTION, FOR WHICH AN IMMEDIATE SOLUTION IS NOT APPARENT, THE ENGINEER AND OWNER SHALL BE NOTIFIED IMMEDIATELY.
8.

IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING PUBLIC AND PRIVATE UTILITIES THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY COMPANIES FOR LINE LOCATIONS, AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL ASSUME FULL LIABILITY TO THOSE COMPANIES FOR ANY DAMAGES CAUSED TO THEIR FACILITIES. CONTRACTOR SHALL ADJUST ALL EXISTING AND PROPOSED UTILITIES TO FINAL GRADE.
9.

THE CONTRACTOR MUST CONFINE HIS ACTIVITY TO THE WORK AREA. NO ENCROACHMENTS ONTO ADJACENT PROPERTIES WILL BE ALLOWED UNLESS SPECIFIED IN THE PLANS AND HAVE AGREEMENT LETTERS FROM ADJACENT PROPERTY OWNERS. ANY DAMAGE RESULTING THEREFROM SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR.
10.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. CONTRACTOR IS RESPONSIBLE TO ADJUST ANY EXISTING OR PROPOSED UTILITIES TO FINISHED GRADE.
11.

ALL TRAFFIC CONTROL NECESSARY FOR THE WORK SHALL BE PROVIDED BY THE AFFECTED CONTRACTOR. ALL BARRICADES, WARNING SIGNS, LIGHTS, DEVICES, ETC. FOR THE GUIDANCE AND PROTECTION OF TRAFFIC AND PEDESTRIANS MUST CONFORM TO THE INSTALLATIONS SHOWN IN THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS CURRENTLY AMENDED, TEXAS DEPARTMENT OF TRANSPORTATION.



VICINITY MAP  
N.T.S.

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RECORD DRAWINGS

THE SIGNED AND SEALED CONSTRUCTION DOCUMENT HAS BEEN REVISED TO REFLECT CONSTRUCTION RECORDS MAINTAINED AND PROVIDED BY THE CONTRACTOR FOR THIS PROJECT. THE INFORMATION SHOWN ON THIS RECORD DRAWING, WHICH WAS A WITH THE DESIGN ENGINEER, CANNOT BE VERIFIED FOR ACCURACY OR COMPLETENESS. CORNERSTONE SHALL ASSUME NO LIABILITY FOR ANY CHANGES MADE DURING CONSTRUCTION THAT WERE NOT SPECIFICALLY APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. THE SEALED CONSTRUCTION DRAWINGS ARE ON FILE AT THE OFFICES OF CORNERSTONE

ATTESTED BY: MITCH LENAMOND, P.E. #92714

SIGNATURE:

ENGINEER OF RECORD: MITCH LENAMOND, P.E. #92714

CONTRACTOR:

DATE REVISED: 10/24/2025

OWNER / DEVELOPER  
M & J RANCH TRAIL HOLDINGS, LLC.  
315 RANCH TRAIL  
ROCKWALL, TEXAS 75023  
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GENERAL ITEMS

- 1. All construction shall conform to the requirements set forth in the City of Rockwall’s Engineering Department’s “Standards of Design and Construction” and the “Standard Specifications for Public Works Construction" by the North Texas Central Council of Governments, 5th edition amended by the City of Rockwall. The CONTRACTOR shall reference the latest City of Rockwall standard details provided in the Rockwall Engineering Departments "Standards of Design and Construction" manual for details not provided in these plans. The CONTRACTOR shall possess one set of the NCTCOG Standard Specifications and Details and the City of Rockwall's "Standards of Design and Construction" manual on the project site at all times
- 2. Where any conflicting notes, details or specifications occur in the plans the City of Rockwall General Construction Notes, Standards, Details and Specifications shall govern unless detail or specification is more strict.
- 3. The City of Rockwall Engineering Departments “Standards of Design and Construction” can be found online at: <http://www.rockwall.com/engr.asp>
- 4. All communication between the City and the CONTRACTOR shall be through the Engineering Construction Inspector and City Engineer or designated representative only. It is the responsibility of the CONTRACTOR to contact the appropriate department for inspections that do not fall under this approved engineering plan set.
- 5. Prior to construction, CONTRACTOR shall have in their possession all necessary permits, plans, licenses, etc.
- 6. The CONTRACTOR shall have at least one original stamped and signed set of approved engineering plans and specifications on-site and in their possession at all times. A stop work order will be issued if items are not on-site. Copies of the approved plans will not be substituted for the required original “approved plans to be on-site”.
- 7. All material submittals, concrete batch designs and shop drawings required for City review and approval shall be submitted by the CONTRACTOR to the City sufficiently in advance of scheduled construction to allow no less than 10 business days for review and response by the City.
- 8. All site dimensions are referenced to the face of curb or edge of pavement unless otherwise noted.
- 9. The City requires ten (10%) percent-two (2) year maintenance bond for paving, paving improvements, water systems, wastewater systems, storm sewer systems including detention systems, and associated fixtures and structures which are located within the right-of-ways or defined easements. The two (2) year maintenance bond is to state “from date of City acceptance” as the starting time.
- 10. A review of the site shall be conducted at twenty (20) months into the two (2) year maintenance period. The design engineer or their designated representative and the CONTRACTOR shall be present to walk the site with the City of Rockwall Engineering Inspection personnel.

EROSION CONTROL & VEGETATION

- 1. The CONTRACTOR or developer shall be responsible, as the entity exercising operational control, for all permitting as required by the Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ). This includes, but is not limited to, preparation of the Storm Water Pollution Prevention Plan (SWPPP), the Construction Site Notice (CSN), the Notice of Intent (NOI), the Notice of Termination (NOT) and any Notice of Change (NOC) and is required to pay all associated fees
- 2. Erosion control devices as shown on the erosion control plan for the project shall be installed prior to the start of land disturbing activities.
- 3. All erosion control devices are to be installed in accordance with the approved plans, specifications and Storm Water Pollution Prevention Plan (SWPPP) for the project. Erosion control devices shall be placed and in working order prior to start of construction. Changes are to be reviewed and approved by the design engineer and the City of Rockwall prior to implementation.
- 4. If the Erosion Control Plans and Storm Water Pollution Prevention Plan (SWPPP) as approved cannot appropriately control erosion and off-site sedimentation from the project, the erosion control plan and/or the SWPPP is required to be revised and any changes reported to the Texas Commission on Environmental Quality (TCEQ), when applicable.
- 5. All erosion control devices shall be inspected weekly by the CONTRACTOR and after all major rain events, or more frequently as dictated in the project Storm Water Pollution Prevention Plan (SWPPP). CONTRACTOR shall provide copies of inspection’s reports to the engineering inspection after each inspection.
- 6. The CONTRACTOR shall not dispose of waste and any materials into streams, waterways or floodplains. The CONTRACTOR shall secure all excavation at the end of each day and dispose of all excess materials.
- 7. CONTRACTOR shall take all available precautions to control dust. CONTRACTOR shall control dust by sprinkling water or other means as approved by the City Engineer.
- 8. CONTRACTOR shall establish grass and maintain the seeded area, including watering, until a “Permanent Stand of Grass” is obtained at which time the project will be accepted by the City. A “Stand of Grass” (not winter rye or weeds) shall consist of 75% to 80% coverage of all disturbed areas and a minimum of one-inch (1”) in height as determined by the City. No bare spots will be allowed. Re-seeding will be required in all washed areas and areas that don’t grow.
- 9. All City right-of-ways shall be sodded if disturbed. No artificial grass is allowed in any City right-of-way and/or easements.
- 10. All adjacent streets/alleys shall be kept clean at all times
- 11. CONTRACTOR shall keep construction site clean at all times, immediately contain all debris and trash, all debris and trash shall be removed at the end of each work day, and all vegetation on the construction site 10-inches or taller in height must be cut immediately.
- 12. Suspension of all construction activities for the project will be enforced by the City if any erosion control requirements are not meet. Work may commence after deficiency has been rectified.
- 13. During construction of the project, all soil stockpiles and borrow areas shall be stabilized or protected with sediment trapping measures. The CONTRACTOR is responsible for the temporary protection and permanent stabilization of all soil stockpiles on-site as well as borrow areas and soil intentionally transported from the project site.
- 14. Where construction vehicles access routes intersect paved or public roads/alleys, construction entrances shall be installed to minimize the transport of sediment by vehicular tracking onto paved surfaces. Where sediment is transferred onto paved or public surfaces, the surface shall be immediately cleaned. Sediment shall be

removed from the surface by shoveling or sweeping and transported to a sediment disposal area. Pavement washing shall be allowed only after sediment is removed in this manner.

- 15. All drainage inlets shall be protected from siltation, ineffective or unmaintained protection devices shall be immediately replaced and the inlet and storm system cleaned. Flushing is not an acceptable method of cleaning.
- 16. During all dewatering operations, water shall be pumped into an approved filtering device prior to discharge into a receiving outlet.

TRAFFIC CONTROL

- 1. All new Detouring or Traffic Control Plans are required to be submitted to the City for review and approval a minimum of 21 calendar days prior to planned day of implementation.
- 2. When the normal function of the roadway is suspended through closure of any portion of the right-of-way, temporary construction work zone traffic control devices shall be installed to effectively guide the motoring public through the area. Consideration for road user safety, worker safety, and the efficiency of road user flow is an integral element of every traffic control zone.
- 3. All traffic control plans shall be prepared and submitted to the Engineering Department in accordance with the standards identified in Part VI of the most recent edition of the TMUTCD. Lane closures will not occur on roadways without an approval from the Rockwall Engineering Department and an approved traffic control plan. Traffic control plans shall be required on all roadways as determined by the City Engineer or the designated representative.
- 4. All traffic control plans must be prepared, signed, and sealed by an individual that is licensed as a professional engineer in the State of Texas. All traffic control plans and copies of work zone certification must be submitted for review and approval a minimum of three (3) weeks prior to the anticipated temporary traffic control.
- 5. The CONTRACTOR executing the traffic control plan shall notify all affected property owners two (2) weeks prior to any the closures in writing and verbally.
- 6. Any deviation from an approved traffic control plan must be reviewed by the City Engineer or the designated representative. If an approved traffic control plan is not adhered to, the CONTRACTOR will first receive a verbal warning and be required to correct the problem immediately. If the deviation is not corrected, all construction work will be suspended, the lane closure will be removed, and the roadway opened to traffic.
- 7. All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time at the end of the workday, all temporary traffic control devices that are no longer appropriate shall be removed or covered. The first violation of this provision will result in a verbal warning to the construction foreman. Subsequent violations will result in suspension of all work at the job site for a minimum of 48 hours. All contractors working on City funded projects will be charged one working day for each 24 hour closure.
- 8. Lane closures on any major or minor arterial will not be permitted between the hours of 6:00 am to 9:00 am and 3:30 pm to 7:00 pm. Where lane closures are needed in a school area, they will not be permitted during peak hours of 7:00 am – 9:00 am and 3:00 pm to 5:00 pm. Closures may be adjusted according to the actual start-finish times of the actual school with approval by the City Engineer. The first violation of this provision will result in a verbal warning to the construction foreman. Subsequent violations will result in suspension of all work at the job site for a minimum of 48 hours. All contractors working on City funded projects will be charged one working day for each 24 hour closure of a roadway whether they are working or not.
- 9. No traffic signs shall be taken down without permission from the City.
- 10. No street/roadway will be allowed to be fully closed.

UTILITY LINE LOCATES

- 1. It is the CONTRACTOR’s responsibility to notify utility companies to arrange for utility locates at least 48 hours prior to beginning construction. The completeness and accuracy of the utility data shown on the plans is not guaranteed by the design engineer or the City. The CONTRACTOR is responsible for verifying the depth and location of existing underground utilities proper to excavating, trenching, or drilling and shall be required to take any precautionary measures to protect all lines shown and .or any other underground utilities not on record or not shown on the plans.
- 2. The CONTRACTOR shall be responsible for damages to utilities
- 3. CONTRACTOR shall adjust all City of Rockwall utilities to the final grades.
- 4. All utilities shall be placed underground.
- 5. CONTRACTOR shall be responsible for the protection of all existing main lines and service lines crossed or exposed by construction operations. Where existing mains or service lines are cut, broken or damaged, the CONTRACTOR shall immediately make repairs to or replace the entire service line with same type of original construction or better. The City of Rockwall can and will intervene to restore service if deemed necessary and charge the CONTRACTOR for labor, equipment, material and loss of water if repairs aren’t made in a timely manner by the CONTRACTOR.
- 6. The City of Rockwall (City utilities) is not part of the Dig Tess or Texas one Call – 811 – line locate system. All City of Rockwall utility line locates are to be scheduled with the City of Rockwall Service Center. 972-771-7730. A 48-hour advance notice is required for all non-emergency line locates.
- 7. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
  - a. No more than 500 linear feet of trench may be opened at one time.
  - b. Material used for backfilling trenches shall be properly compacted to 95% standard density in order to minimize erosion, settlement, and promote stabilization that the geotechnical engineer recommends.
  - c. Applicable safety regulations shall be complied with.
- 11. This plan details pipes up to 5 feet from the building. Refer to the building plans for building connections. CONTRACTOR shall supply and install pipe adapters as necessary.
- 12. All underground lines shall be installed, inspected, and approved prior to backfilling.
- 13. All concrete encasement shall have a minimum of 28 days compressive strength at 3,000 psi (min. 5.5 sack mix).

WATER LINE NOTES

- 1. The CONTRACTOR shall maintain existing water service at all times during construction.
- 2. Proposed water lines shall be AWWA C900-16 PVC Pipe (blue in color) for all sizes, DR 14 (PC 305) for pipeline sizes 12-inch and smaller, and DR 18 (PC 235) for 14-inch and larger water pipelines unless otherwise shown on water plan and profiles sheets. Proposed water lines shall be constructed with minimum cover of 4 feet for 6-inch through 8-inch, 5 feet for 12-inch through 18-inch and 6 feet for 20-inch and larger.
- 3. Proposed water line embedment shall be NCTCOG Class 'B-3' as amended by the City of Rockwall's engineering standards of design and construction manual.
- 4. CONTRACTOR shall coordinate the shutting down of all water lines with the City of Rockwall Engineering Inspector and Water Department. The City shall operate all water valves. Allow 5 business days from the date of notice to allow City personnel time to schedule a shut down. Two additional days are required for the CONTRACTOR to notify residents in writing of the shut down after the impacted area has been identified. Water shut downs impacting businesses during their normal operation hours is not allowed. CONTRACTOR is required to coordinate with the Rockwall Fire Department regarding any fire watch requirements as well as any costs incurred when the loss of fire protection to a structure occurs.
- 5. CONTRACTOR shall furnish and install gaskets on water lines between all dissimilar metals and at valves (both existing and proposed).
- 6. All fire hydrants and valves removed and salvaged shall be returned to the City of Rockwall Municipal Service Center.
- 7. Blue FMS pads shall be installed at every change in direction, valve, curb stop and service tap on the proposed water line and every 250'.
- 8. All water valve hardware and valve extensions, bolts, nuts and washers shall be 316 stainless steel.
- 9. All fire hydrants bolts, nuts and washers that are buried shall be 316 stainless steel.
- 10. Abandoned water lines to remain in place shall be cut and plugged and all void spaces within the abandoned line shall be filled with grout, flowable fill or an expandable permanent foam product. Valves to be abandoned in place shall have any extensions and the valve box removed and shall be capped in concrete.
- 11. All fire hydrants will have a minimum of 5 feet of clearance around the appurtenance including but not limited to parking spaces and landscaping.
- 12. All joints are to be megalug joints with thrust blocking.
- 13. Water and sewer mains shall be kept 10 feet apart (parallel) or when crossing 2 feet vertical clearance.
- 14. CONTRACTOR shall maintain a minimum of 4 feet of cover on all water lines.
- 15. All domestic and irrigation services are required to have a testable backflow device with a double check valve installed per the City of Rockwall regulations at the property line and shown on plans.

WASTEWATER LINE NOTES

- 1. The CONTRACTOR shall maintain existing wastewater service at all times during construction.
- 2. Wastewater line for 4-inch through 15-inch shall be Green PVC – SDR 35 (ASTM D3034) [less 10 ft cover] and SDR 26 (ASTM D3034) [10 ft or more cover]. For 18-inch and lager wastewater line shall be Green PVC – PS 46 (ASTM F679) [less 10 ft cover] and PS 115 (ASTM F679) [10 ft or more cover]. No services will be allowed on a sanitary sewer line deeper than 10 feet.
- 3. Proposed wastewater line embedment shall be NCTCOG Class 'H' as amended by the City of Rockwall's public works standard design and construction manual.
- 4. Green EMS pads shall be installed at every 250’, manhole, clean out and service lateral on proposed wastewater lines.
- 5. CONTRACTOR shall CCTV all existing wastewater lines that are to be abandoned to ensure that all laterals are accounted for and transferred to proposed wastewater lines prior to abandonment.
- 6. All abandoned wastewater and force main lines shall be cut and plugged and all void spaces within the abandoned line shall be filled with grout, flowable fill or an expandable permanent foam product.
- 7. Existing manholes and cleanouts not specifically called to be relocated shall be adjusted to match final grades.
- 8. All wastewater pipes and public services shall be inspected by photographic means (television and DVD) prior to final acceptance and after franchise utilities are installed. The CONTRACTOR shall furnish a DVD to the Engineering Construction Inspector for review. Pipes shall be cleaned prior to TV inspection of the pipes. Any sags, open joints, cracked pipes, etc. shall be repaired or removed by the CONTRACTOR at the CONTRACTOR’s expense. A television survey will be performed as part of the final testing in the twentieth (20<sup>th</sup>) month of the maintenance period.
- 9. All manholes (public or private) shall be fitted with inflow prevention. The inflow prevention shall conform to the measures called out in standard detail R-5031.
- 10. All new or existing manholes being modified shall have corrosion protection being Raven Liner 405 epoxy coating, ConShield, or approved equal.. Consheild must have terracotta color dye mixed in the precast and cast-in-place concrete. Where connections to existing manholes are made the CONTRACTOR shall rehab manhole as necessary and install a 125 mil thick coating of Raven Liner 405 or approved equal.
- 11. All new or existing manholes that are to be placed in pavement shall be fitted with a sealed (gasketed) rim and cover to prevent inflow.
- 12. If an existing wastewater main or trunk line is called out to be replaced in place a wastewater bypassing pump plan shall be required and submitted to the Engineering Construction Inspector and City Engineer for approval prior to implementation. Bypass pump shall be fitted with an auto dialer and conform to the City’s Noise Ordinance. Plan shall be to the City sufficiently in advance of scheduled construction to allow no less than 10 business days for review and response by the City.
- 13. CONTRACTOR shall maintain a minimum of 4 feet of cover on all wastewater lines.

|                                                                                       |                                                                   |                                        |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------|
|  | <b>GENERAL CONSTRUCTION NOTES</b><br>Sheet 1 of 2<br>October 2020 |                                        |
|                                                                                       | <b>CITY OF ROCKWALL<br/>ENGINEERING DEPARTMENT</b>                | 385 S. Goliad<br>Rockwall, Texas 75087 |
|                                                                                       |                                                                   | P (972) 771-7746<br>F (972) 771-7748   |



DEMOLITION, REMOVAL, DISPOSAL AND EXCAVATION NOTES

1. All pavements to be removed and replaced shall be saw cut to full depth along neat squared lines shown in the plans.
2. Proposed concrete pavement shall be constructed with longitudinal butt construction joints at all connections to existing concrete pavement.
3. All public concrete pavement to be removed and replaced shall be full panel replacement, 1-inch thicker and on top of 6-inch thick compacted flexbase.
4. No excess excavated material shall be deposited in low areas or along natural drainage ways without written permission from the affected property owner and the City of Rockwall. No excess excavation shall be deposited in the City Limits without a permit from the City of Rockwall. If the CONTRACTOR places excess materials in these areas without written permission, the CONTRACTOR will be responsible for all damages resulting from such fill and shall remove the material at their own cost.

PAVING AND GRADING

1. All detention systems are to be installed and verified for design compliance along with the associated storm sewer and outflow structures, prior to the start of any paving operations (including building foundations). Erosion protection shall be placed at the pond outflow structures, silt fence along the perimeter of the pond along with any of the associated erosion BMPs noted on the erosion control plan, and the sides and bottom of the detention system shall have either sod or anchored seeded curlex installed prior to any concrete placement.
2. All paving roadway, driveways, fire lanes, drive-isles, parking, dumpster pads, etc. sections shall have a minimum thickness, strength, reinforcement, joint type, joint spacing and subgrade treatment shall at a minimum conform to the City standards of Design and Construction and table below.

| Street/Pavement Type     | Minimum Thickness (inches) | Streng<br>th 28-<br>Day<br>(psi) | Minimum Cement<br>(sacks / CY) |                | Steel Reinforcement |                       |
|--------------------------|----------------------------|----------------------------------|--------------------------------|----------------|---------------------|-----------------------|
|                          |                            |                                  | Machine<br>placed              | Hand<br>Placed | Bar #               | Spacing<br>(O.C.E.W.) |
| Arterial                 | 10"                        | 3,600                            | 6.0                            | 6.5            | #4 bars             | 18"                   |
| Collector                | 8"                         | 3,600                            | 6.0                            | 6.5            | #4 bars             | 18"                   |
| Residential              | 6"                         | 3,600                            | 6.0                            | 6.5            | #3 bars             | 24"                   |
| Alley                    | 7"-5"-7"                   | 3,600                            | 6.0                            | 6.5            | #3 bars             | 24"                   |
| Fire Lane                | 6"                         | 3,600                            | 6.0                            | 6.5            | #3 bars             | 24"                   |
| Driveways                | 6"                         | 3,600                            | 6.0                            | 6.5            | #3 bars             | 24"                   |
| Barrier Free Ramps       | 6"                         | 3,600                            | N/A                            | 6.5            | #3 bars             | 24"                   |
| Sidewalks                | 4"                         | 3,000                            | N/A                            | 5.5            | #3 bars             | 24"                   |
| Parking Lot/Drive Aisles | 5"                         | 3,000                            | 5.0                            | 5.5            | #3 bars             | 24"                   |
| Dumpster Pads            | 7"                         | 3,600                            | 6.0                            | 6.5            | #3 bars             | 24"                   |

3. Reinforcing steel shall be tied (100%). Reinforcing steel shall be set on plastic chairs. Bar laps shall be minimum 30 diameters. Sawed transverse dummy joints shall be spaced every 15 feet or 1.25 time longitudinal butt joint spacing whichever is less. Sawing shall occur within 5 to 12 hours after the pour, including sealing. Otherwise, the section shall be removed and longitudinal butt joint constructed.
4. No sand shall be allowed under any paving.
5. All concrete mix design shall be submitted to the City for review and approval prior to placement.
6. Fly ash may be used in concrete pavement locations provided that the maximum cement reduction does not exceed 20% by weight per C.Y. of concrete. The fly ash replacement shall be 1.25 lbs. per 1.0 lb. cement reduction.
7. All curb and gutter shall be integral (monolithic) with the pavement.
8. All fill shall be compacted by sheep's foot roller to a minimum 95% standard proctor. Maximum loose lift for compaction shall be 8 inches. All lifts shall be tested for density by an independent laboratory. All laboratory compaction reports shall be submitted to the City Engineering Construction Inspector once results are received. All reports will be required prior to final acceptance.
9. All concrete compression tests and soil compaction/density tests are required to be submitted to the City's Engineering Inspector immediately upon results.
10. All proposed sidewalks shall include barrier free ramps at intersecting streets, alleys, etc. Barrier free ramps (truncated dome plate in Colonial or brick red color) shall meet current City and ADA requirements and be approved by the Texas Department of Licensing and Regulation (TDLR).
11. All public sidewalks shall be doweled into pavement where it abuts curbs and driveways. Expansion joint material shall be used at these locations.
12. All connection of proposed concrete pavement to existing concrete pavement shall include a longitudinal butt joint as the load transfer device. All longitudinal butt joints shall be clean, straight and smooth (not jagged in appearance)
13. Cracks formed in concrete pavement shall be repaired or removed by the CONTRACTOR at the City's discretion. CONTRACTOR shall replace existing concrete curbs, sidewalk, paving, a gutters as indicated on the plans and as necessary to connect to the existing infrastructure, including any damage caused by the CONTRACTOR.
14. All residential lots will require individual grading plans submitted during the building permit process that correspond with the engineered grading and drainage area plans.
15. Approval of this plan is not an authorization to grade adjacent properties when the plans or field conditions warrant off-site grading. Written permission must be obtained and signed from the affected property owner(s) and temporary construction easements may be required. The written permission shall be provided to the City as verification of approval by the adjacent property owner(s). Violation of this requirement will result in suspension of all work at the job site until issue has been rectified.
16. All cut or fill slopes of non-paved areas shall be a maximum of 4:1 and minimum of 1%.
17. CONTRACTOR agrees to repair any damage to property and the public right-of-way in accordance with the City Standards of Design and Construction.
18. CONTRACTOR shall protect all monuments, iron pins/rods, and property corners during construction.
19. CONTRACTOR shall ensure positive drainage so that runoff will drain by gravity flow to new or existing drainage inlets or sheet flow per these approved plans.

DRAINAGE / STORM SEWER NOTES

1. The CONTRACTOR shall maintain drainage at all times during construction. Ponding of water in streets, drives, trenches, etc. will not be allowed. Existing drainage ways shall not be blocked or removed unless explicitly stated in the plans or written approval is given by the City.
2. All structural concrete shall be 4200 psi compressive strength at 28 days minimum 7.0 sack mix, air entrained, unless noted otherwise. Fly ash shall not be allowed in any structural concrete.
3. Proposed storm sewer embedment shall be NCTCOG Class 'B' as amended by the City of Rockwall's Engineering Department Standards of Design and Construction Manual.
4. All public storm pipe shall be a minimum of 18-inch reinforced concrete pipe (RCP), Class III, unless otherwise noted.
5. All storm pipe entering structures shall be grouted to assure connection at the structure is watertight.
6. All storm structures shall have a smooth uniform poured mortar invert from invert in to invert out.
7. All storm sewer manholes in paved areas shall be flush with the paving grade, and shall have traffic bearing ring and covers.
8. All storm sewer pipes and laterals shall be inspected by photographic means (television and DVD) prior to final acceptance and after franchise utilities are installed. The CONTRACTOR shall furnish a DVD to the Engineering Construction Inspector for review. Pipes shall be cleaned prior to TV inspection of the pipes. Any sags, open joints, cracked pipes, etc. shall be repaired or removed by the CONTRACTOR at the CONTRACTOR's expense. A television survey will be performed as part of the final testing in the twentieth (20<sup>th</sup>) month of the maintenance period.

RETAINING WALLS

1. All retaining walls, regardless of height, will be reviewed and approved by the City Engineering Department
2. All retaining walls (including foundation stem walls), regardless of height, will be constructed of rock/stone/brick or rock/stone/brick faced. No smooth concrete walls are allowed. Wall materials shall be the same for all walls on the project.
3. All portions, including footings, tie-backs, and drainage backfill, of the wall shall be on-site and not encroach into any public easements or right-of-way. The entire wall shall be in one lot and shall not be installed along a lot line.
4. All walls 3 feet and taller will be designed and signed/sealed by a registered professional engineer in the State of Texas. The wall design engineer is required to inspect the wall construction and supply a signed/sealed letter of wall construction compliance to the City of Rockwall along with wall as-builts prior to City Engineering acceptance.
5. No walls are allowed in detention easements. A variance to allow retaining walls in a detention easement will require approval by the Planning and Zoning Commission with appeals being heard by the City Council.

FINAL ACCEPTANCE AND RECORD DRWINGS/AS-BUILTS

1. Final Acceptance shall occur when all the items on the Checklist for Final Acceptance have been completed and signed-off by the City. An example of the checklist for final acceptance has been included in the Appendix of the Standards of Design and Construction. Items on the checklist for final acceptance will vary per project and additional items not shown on the check list may be required.
2. After improvements have been constructed, the developer shall be responsible for providing to the City "As Built" or "Record Drawings". The Design Engineer shall furnish all digital files of the project formatted in Auto Cad 14, or 2000 format or newer and Adobe Acrobat (.pdf) format with a CD-ROM disk or flash drive. The disk or drive shall include a full set of plans along with any landscaping, wall plans, and details sheets.
3. Submit 1-set of printed drawings of the "Record Drawings" containing copies of all sheets to the Engineering Construction Inspector for the project. The printed sheets will be reviewed by the inspector PRIOR to producing the "Record Drawing" digital files on disk or flash drive. This will allow any revisions to be addressed prior to producing the digital files.
4. Record Drawing Disk drawings shall have the Design Engineers seal, signature and must be stamped and dated as "Record Drawings" or "As Built Drawings" on all sheets.
5. The City of Rockwall will not accept any Record Drawing disk drawings which include a disclaimer. A disclaimer shall not directly or indirectly state or indicate that the design engineer or the design engineer's surveyor/surveyors did not verify grades after construction, or that the Record Drawings were based solely on information provided by the construction contractor/contractors. Any Record Drawings which include like or similar disclaimer verbiage will not be accepted by the City of Rockwall.
6. Example of Acceptable Disclaimer: "To the best of our knowledge ABC Engineering, Inc., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor."



**GENERAL CONSTRUCTION NOTES**  
Sheet 2 of 2  
October 2020

**CITY OF ROCKWALL  
ENGINEERING DEPARTMENT**

385 S. Goliad  
Rockwall, Texas 75087

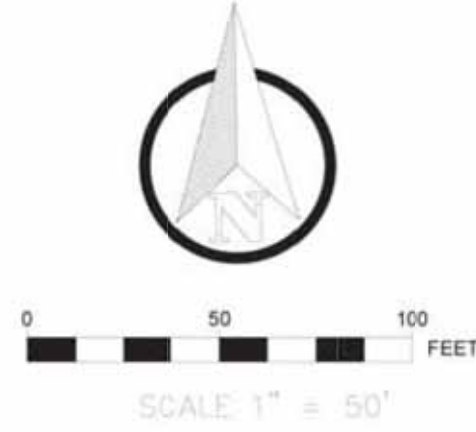
P (972) 771-7746  
F (972) 771-7748



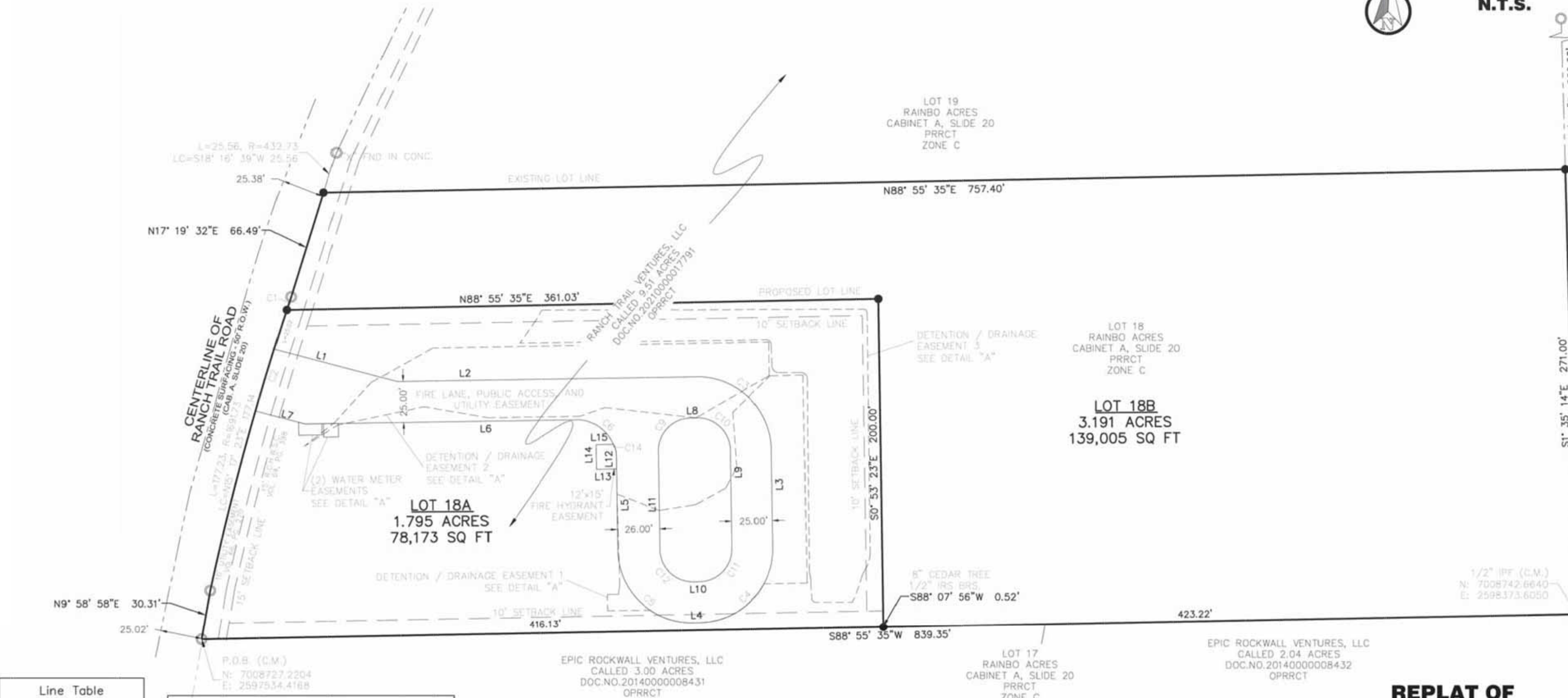
**NOTES:**

1. THE PURPOSE OF THIS PLAT IS TO SUBDIVIDE THE SUBJECT PROPERTY
2. NOTHING IN THIS SURVEY IS INTENDED TO EXPRESS AN OPINION REGARDING OWNERSHIP OF TITLE.
3. THE WORD CERTIFY IS UNDERSTOOD TO BE AN EXPRESSION OF PROFESSIONAL JUDGEMENT BY THE SURVEYOR, WHICH IS HIS BEST KNOWLEDGE, INFORMATION AND BELIEF.
4. SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.
5. THE FINDINGS AND OPINIONS OF ELD, INC., REFLECTED HEREON ARE PRIVILEGED, CONFIDENTIAL AND INTENDED FOR THE USE OF THE INDIVIDUAL OR ENTITY FOR WHOM THIS WORK WAS PREPARED. IT IS UNDERSTOOD THAT THE USE OF, RELIANCE ON, OR PRODUCTION OF SAME, IN WHOLE OR IN PART, BY OTHERS WITHOUT EXPRESS WRITTEN CONSENT OF ELD INC., IS PROHIBITED AND WITHOUT WARRANTY, EXPRESS OR IMPLIED. ELD INC., SHALL BE HELD HARMLESS AGAINST DAMAGES OR EXPENSES RESULTING FROM SUCH UNAUTHORIZED USE, RELIANCE OR REPRODUCTION. COPYRIGHT 2023. ALL RIGHTS RESERVED.
6. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF TITLE REPORT. CERTAIN EASEMENTS AND/OR BUILDING LINES MAY HAVE BEEN GRANTED WHICH ARE NOT REFLECTED HEREON. THIS SURVEY IS SUBJECT TO ANY FACTS THAT MAY BE DISCLOSED BY A FULL AND ACCURATE TITLE SEARCH.
7. ELEVATIONS AND DIRECTIONAL CONTROL ARE BASED ON NAD83 TX N CENTRAL 4202, NAVD88(GEIOD 18) GPS OBSERVATIONS

8. IT SHALL BE THE POLICY OF THE CITY OF ROCKWALL TO WITHHOLD ISSUING BUILDING PERMITS UNTIL ALL STREETS, WATER, SEWER, AND STORM DRAINAGE SYSTEMS HAVE BEEN ACCEPTED BY THE CITY. THE APPROVAL OF THE PLAT BY CITY DOES NOT CONSTITUTE AND REPRESENTATION, ASSURANCE, OR GUARANTEE THAT ANY BUILDING WITHIN SUCH PLAT SHALL BE APPROVED, NOR SHALL SUCH APPROVAL CONSTITUTE ANY REPRESENTATION, ASSURANCE, OR GUARANTEE BY THE CITY OF THE ADEQUACY AND AVAILABILITY FOR WATER FOR PERSONAL USE AND FIRE PROTECTION WITHIN SUCH PLAT, AS REQUIRED UNDER ORDINANCE 83-53
9. SUBJECT PROPERTY IS LOCATED WITHIN AN AREA HAVING A ZONE DESIGNATION OF "X" BY THE SECRETARY OF HOUSING & DEVELOPMENT ON FLOOD INSURANCE RATE MAP NO. FEMA-MAP 48397C 0040L, EFFECTIVE DATE OF 09-26-2008, FOR COMMUNITY PANEL NO. 480547, CITY OF ROCKWALL, TEXAS. THIS FLOOD STATEMENT SHALL NOT INCUR ANY LIABILITY UPON THE PART OF THE SURVEYOR.
10. PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE, REPAIRS, AND/OR REPLACEMENTS OF DRAINAGE AND DETENTION EASEMENTS ON SITE.



**VICINITY MAP  
N.T.S.**



| Line # | Direction     | Length  |
|--------|---------------|---------|
| L1     | S75° 16' 20"E | 77.45'  |
| L2     | N89° 06' 37"E | 182.62' |
| L3     | S0° 53' 23"E  | 59.74'  |
| L4     | S89° 06' 37"W | 5.81'   |
| L5     | N0° 53' 23"W  | 59.33'  |
| L6     | S89° 06' 37"W | 167.98' |
| L7     | N75° 16' 20"W | 31.16'  |
| L8     | N89° 06' 37"E | 3.80'   |
| L9     | S0° 53' 23"E  | 59.74'  |
| L10    | S89° 06' 37"W | 3.80'   |
| L11    | N0° 53' 23"W  | 59.74'  |
| L12    | N0° 53' 23"W  | 8.88'   |
| L13    | N89° 06' 37"E | 12.00'  |
| L14    | S0° 53' 23"E  | 15.00'  |
| L15    | S89° 06' 37"W | 10.51'  |

| Curve # | Length | Radius  | Delta | Chord Direction | Chord Length |
|---------|--------|---------|-------|-----------------|--------------|
| C1      | 8.38   | 1691.73 | 0.28  | N18° 25' 58"E   | 8.38         |
| C2      | 39.32  | 1691.73 | 1.33  | S16° 46' 40"W   | 39.32        |
| C3      | 70.69  | 45.00   | 90.00 | S45° 53' 23"E   | 63.64        |
| C4      | 70.69  | 45.00   | 90.00 | S44° 06' 37"W   | 63.64        |
| C5      | 69.70  | 45.01   | 88.72 | N45° 15' 06"W   | 62.94        |
| C6      | 31.59  | 25.00   | 72.39 | N47° 10' 07"W   | 29.53        |
| C7      | 19.86  | 50.00   | 22.75 | N79° 30' 45"W   | 19.73        |
| C8      | 42.29  | 25.00   | 96.92 | S63° 24' 14"W   | 37.43        |
| C9      | 31.42  | 20.00   | 90.00 | N44° 06' 37"E   | 28.28        |
| C10     | 31.42  | 20.00   | 90.00 | S45° 53' 23"E   | 28.28        |
| C11     | 31.42  | 20.00   | 90.00 | S44° 06' 37"W   | 28.28        |
| C12     | 31.42  | 20.00   | 90.00 | N45° 53' 23"W   | 28.28        |
| C13     | 28.99  | 1691.73 | 0.98  | N17° 08' 16"E   | 28.99        |
| C14     | 5.34   | 25.00   | 12.23 | N17° 05' 21"W   | 5.33         |

**LEGEND**

- 1/2" IRON REBAR FOUND  
UNLESS OTHERWISE NOTED
- IRON ROD SET  
WITH CAP STAMPED  
"ELD ENG. 10194489"  
UNLESS OTHERWISE NOTED
- IPF IRON PIPE FOUND
- OPRRCT OFFICIAL PUBLIC RECORDS  
OF ROCKWALL COUNTY, TX
- PRRCT PLAT RECORDS OF  
ROCKWALL COUNTY, TX
- (C.M.) CONTROL MONUMENT

**SURVEYOR/ENGINEER:**

JACOB HOLMES (SURVEYOR)  
MITCH LENAMOND (ENGINEER)  
ERIC L. DAVIS ENGINEERING, INC.  
P.O. BOX 2637  
FORNEY, TX 75126  
(972) 564-0592

**OWNER:**

JOHN MCKINNEY  
RANCH TRAIL VENTURES, LLC  
315 RANCH TRAIL  
ROCKWALL, TEXAS 75032

**DATE PREPARED: 12/01/2023**

**REPLAT OF  
RAINBO ACRES ADDITION, LOT 18**

**LOTS 18A & 18B  
2 LOTS  
4.986 ACRES / 217,178 SQ FT  
SITUATED IN THE  
CITY OF ROCKWALL  
ROCKWALL COUNTY, TEXAS**

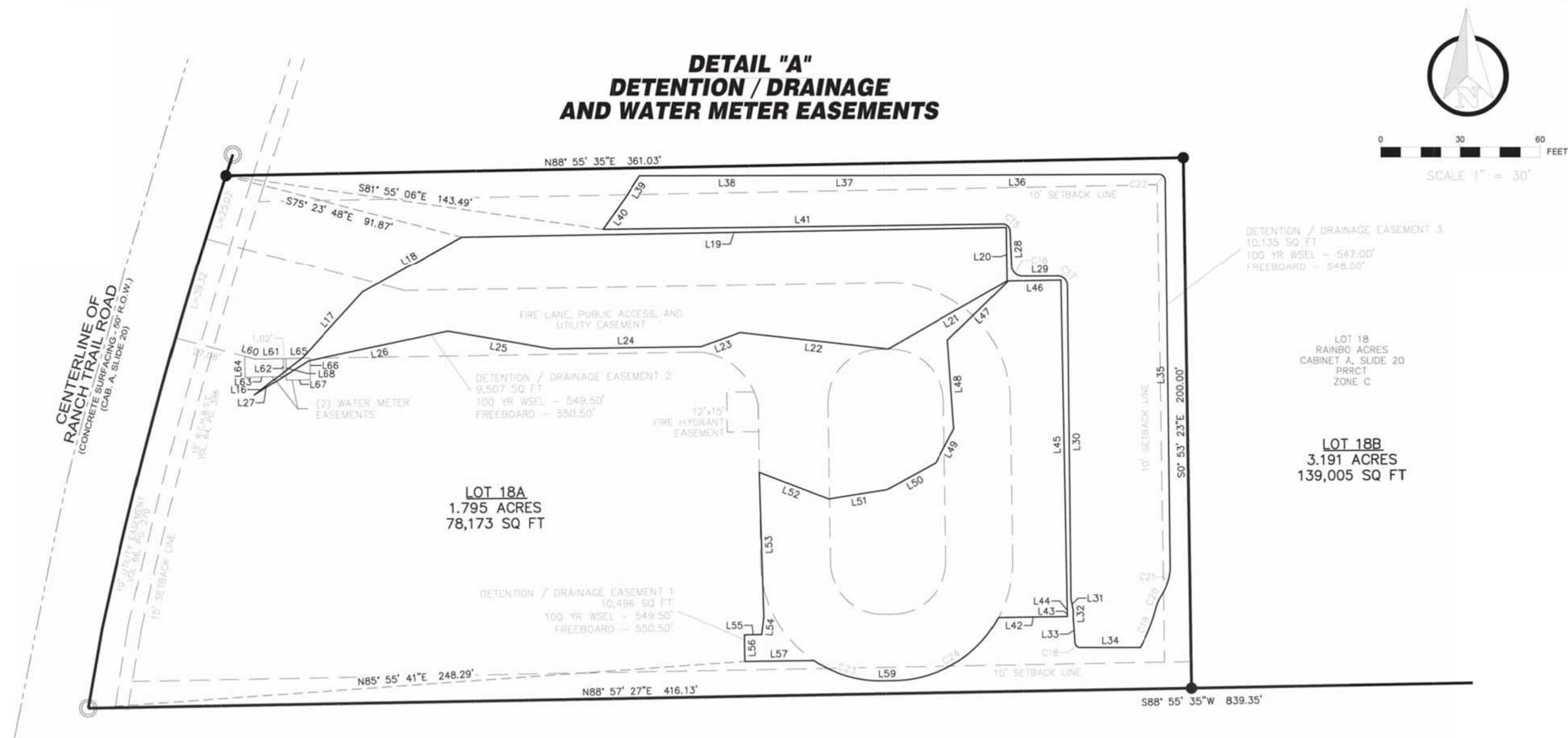
**SHEET 1 OF 3**

ERIC L. DAVIS ENGINEERING, INC.  
FIRM NO. 10194489  
401 PINSON RD  
Forney, Texas 75126  
972/564-0592 Fax 972/564-6523  
E-Mail ericdavis@eldengineering.com





DETAIL "A"  
DETENTION / DRAINAGE  
AND WATER METER EASEMENTS



LEGEND

- 1/2" IRON REBAR FOUND  
UNLESS OTHERWISE NOTED
- IRON ROD SET  
WITH CAP STAMPED  
"ELD ENG. 10194489"  
UNLESS OTHERWISE NOTED
- IRON PIPE FOUND
- OFFICIAL PUBLIC RECORDS  
OF ROCKWALL COUNTY, TX
- PLAT RECORDS OF  
ROCKWALL COUNTY, TX
- CONTROL MONUMENT
- WATER SURFACE ELEVATION

| Line Table |               |         |
|------------|---------------|---------|
| Line #     | Direction     | Length  |
| L16        | N52° 05' 10"E | 23.40'  |
| L17        | N42° 22' 13"E | 33.09'  |
| L18        | N60° 46' 45"E | 42.87'  |
| L19        | N88° 58' 53"E | 205.12' |
| L20        | S0° 53' 23"E  | 20.46'  |
| L21        | S60° 11' 14"W | 51.53'  |
| L22        | N83° 39' 11"W | 56.07'  |
| L23        | S70° 25' 32"W | 15.82'  |
| L24        | S89° 08' 26"W | 56.25'  |
| L25        | N80° 17' 57"W | 39.62'  |
| L26        | S78° 00' 30"W | 53.72'  |
| L27        | S57° 41' 31"W | 24.13'  |
| L28        | S2° 25' 23"E  | 12.96'  |
| L29        | N89° 47' 20"E | 12.87'  |
| L30        | S0° 38' 52"E  | 118.14' |
| L31        | S11° 24' 34"E | 4.19'   |
| L32        | S0° 53' 23"E  | 3.08'   |
| L33        | S4° 00' 20"E  | 9.30'   |
| L34        | N89° 58' 19"E | 22.64'  |
| L35        | N0° 43' 44"W  | 146.52' |

| Line Table |               |         |
|------------|---------------|---------|
| Line #     | Direction     | Length  |
| L36        | S89° 44' 34"W | 107.37' |
| L37        | S89° 59' 47"W | 22.66'  |
| L38        | S89° 54' 20"W | 65.94'  |
| L39        | S32° 52' 49"W | 9.35'   |
| L40        | S35° 21' 46"W | 15.06'  |
| L41        | N89° 14' 40"E | 150.16' |
| L42        | N89° 06' 37"E | 26.14'  |
| L43        | N1° 05' 49"W  | 1.85'   |
| L44        | N1° 05' 49"W  | 0.95'   |
| L45        | N1° 05' 49"W  | 123.83' |
| L46        | S89° 06' 37"W | 20.01'  |
| L47        | S45° 34' 58"W | 31.85'  |
| L48        | S4° 04' 42"E  | 33.54'  |
| L49        | S28° 14' 14"W | 14.45'  |
| L50        | S61° 17' 13"W | 21.06'  |
| L51        | S81° 05' 32"W | 22.35'  |
| L52        | N68° 56' 29"W | 27.83'  |
| L53        | S1° 48' 45"E  | 54.53'  |
| L54        | S6° 55' 32"W  | 6.58'   |
| L55        | S89° 15' 35"W | 6.50'   |

| Line Table |               |        |
|------------|---------------|--------|
| Line #     | Direction     | Length |
| L56        | S0° 53' 23"E  | 10.00' |
| L57        | N89° 16' 20"E | 25.86' |
| L59        | N89° 06' 37"E | 5.81'  |
| L60        | S75° 19' 33"E | 4.08'  |
| L61        | N89° 06' 33"E | 10.31' |
| L62        | S0° 55' 42"E  | 6.79'  |
| L63        | S88° 58' 58"W | 14.24' |
| L64        | N0° 54' 25"W  | 7.92'  |
| L65        | N89° 00' 15"E | 9.12'  |
| L66        | S0° 53' 27"E  | 8.15'  |
| L67        | S89° 04' 18"W | 9.12'  |
| L68        | N0° 54' 25"W  | 8.13'  |

| Curve Table |        |        |        |                 |              |
|-------------|--------|--------|--------|-----------------|--------------|
| Curve #     | Length | Radius | Delta  | Chord Direction | Chord Length |
| C15         | 5.09   | 2.90   | 100.72 | S46° 54' 27"E   | 4.46         |
| C16         | 6.51   | 4.15   | 89.84  | S47° 42' 34"E   | 5.86         |
| C17         | 5.92   | 3.64   | 93.30  | S50° 02' 58"E   | 5.29         |
| C18         | 2.83   | 2.14   | 75.92  | S44° 57' 54"E   | 2.63         |
| C19         | 16.68  | 62.16  | 15.38  | N21° 44' 05"E   | 16.63        |
| C20         | 5.25   | 18.10  | 16.63  | N26° 10' 34"E   | 5.23         |
| C21         | 9.73   | 21.28  | 26.19  | N17° 33' 04"E   | 9.64         |
| C22         | 3.90   | 2.45   | 91.40  | N41° 29' 55"W   | 3.50         |
| C23         | 26.34  | 45.01  | 33.53  | S72° 51' 02"E   | 25.96        |
| C24         | 47.83  | 45.00  | 60.90  | N58° 39' 42"E   | 45.61        |

SURVEYOR/ENGINEER:  
JACOB HOLMES (SURVEYOR)  
MITCH LENAMOND (ENGINEER)  
ERIC L. DAVIS ENGINEERING, INC.  
P.O. BOX 2637  
FORNEY, TX 75126  
(972) 564-0592

OWNER:  
JOHN MCKINNEY  
RANCH TRAIL VENTURES, LLC  
315 RANCH TRAIL  
ROCKWALL, TEXAS 75032

DATE PREPARED: 12/01/2023

REPLAT OF  
RAINBO ACRES ADDITION, LOT 18

LOTS 18A & 18B  
2 LOTS  
4.986 ACRES / 217,178 SQ FT  
SITUATED IN THE  
CITY OF ROCKWALL  
ROCKWALL COUNTY, TEXAS  
SHEET 2 OF 3

ERIC L. DAVIS ENGINEERING, INC.  
FIRM NO. 10194489  
401 PINSON RD  
Forney, Texas 75126  
972/564-0592 Fax 972/564-6523  
E-Mail ericdavis@eldengineering.com





OWNERS CERTIFICATE  
STATE OF TEXAS  
COUNTY OF ROCKWALL

WHEREAS M & J RANCH TRAIL HOLDINGS, LLC is the owner of Lot 18 of the RAINBO ACRES ADDITION, an addition to the City of Rockwall, Texas According to the plat recorded in Cabinet A, Slide 20, of the Plat Records of Rockwall County Texas, same being a portion of a called 9.51 acre tract as described in the deed to Ranch Trail Ventures, LLC, recorded in Document No. 20210000017791 of the Official Public Records of Rockwall County, Texas, (OPRRCT), situated in the W.W. FORD SURVEY, A-80, within the City of Rockwall, Rockwall County, Texas, and being further described by metes and bounds as follows:

BEGINNING at a 1/2" iron rod found in the East right of way line of Ranch Trail Rd (50' ROW), for the Southwest corner of said Lot 18, same being the Northwest corner of Lot 17 of said RAINBO ACRES ADDITION, and being the Northwest corner of a 3.00 acre tract described in a deed to Epic Rockwall Ventures, LLC recorded in Doc. No. 20140000008431 (OPRRCT) ;

THENCE along the East ROW line of said Ranch Trail Rd. in common with the West line of said Lot 18, as follows:

North 09° 58' 58" East, 30.31 feet to a 1/2" iron rod found, and being at the beginning of a curve to the right whose radius is 1691.73 feet, and

along said curve a distance of 185.61 feet to 1/2" iron rod found, the long chord of said curve is North 15° 25' 54" East 185.51, and

North 17° 19' 32" East, 66.49 feet to a 1/2" iron rod set with an orange cap stamped "ELD ENG. 10194489" for the Northwest corner of said Lot 18, same being the Southwest corner of Lot 19 of said RAINBO ACRES ADDITION;

THENCE along the South line of said Lot 19 in common with the North line of said Lot 18, North 88° 55' 35" East a distance of 757.40 feet to a 1/2" iron rod set with an orange cap stamped "ELD ENG. 10194489" for the common east corner of same, same being in the West line of a 131.39 acre tract described in a deed to Wallace Land Partners L P, and recorded in Vol. 2017 Pg. 76 Rockwall County Records, Texas;

THENCE along the West line of said 131.39 acre tract, common with the East line of said Lot 18, South 01° 35' 14" East a distance of 271.00 feet to a 1/2" iron pipe found for the Southeast corner Said Lot 18, same being the Northeast corner of Lot 17, and the Northeast corner of a called 2.04 acre tract described in a deed to Epic Rockwall Ventures, LLC recorded in Doc. No. 20140000008432 (OPRRCT);

THENCE along the said common line, and continuing with the North line of said 3.00 acre Tract, South 88° 55' 35" West a distance of 839.35 feet to the POINT OF BEGINNING containing 217,178 square feet or 4.986 acres, as surveyed.

SURVEYORS CERTIFICATE

I, Jacob N. Holmes, a Registered Professional Land Surveyor, licensed by the State of Texas, do hereby certify that I have prepared this plat from an actual survey of the land and that the corner monuments shown hereon were found and/or properly placed under supervision in accordance with the platting rules and regulations of the City of Forney, Kaufman County, Texas.

WITNESS MY HAND AT BELL COUNTY, TEXAS this the \_\_\_\_ day of \_\_\_\_\_, 2023

Jacob N. Holmes  
Texas Registered Professional Land Surveyor # 6482

Chairman \_\_\_\_\_ Date \_\_\_\_\_  
Planning & Zoning Commission

APPROVED:

I hereby certify that the above and foregoing plat of RAINBO ACRES ADDITION, LOT 18, an addition to the City of Rockwall, Texas, was approved by the City Council of the City of Rockwall on the \_\_\_\_ day of \_\_\_\_\_, 2023

This approval shall be invalid unless the approved plat for such addition is recorded in the office of the County Clerk of Rockwall, Texas, within one hundred eighty (180) days from the said date of final approval

WITNESS, our hands, this the \_\_\_\_ day of \_\_\_\_\_, 2023.

Mayor, City of Rockwall \_\_\_\_\_ City Secretary, City of Rockwall \_\_\_\_\_

City Engineer \_\_\_\_\_

OWNERS DEDICATION  
STATE OF TEXAS  
COUNTY OF ROCKWALL

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

THAT, M&J RANCH TRAIL HOLDINGS, LLC, the undersigned owner of the land shown on this plat, and designated herein as RAINBO ACRES ADDITION, LOT 18, an addition to the City of Rockwall Texas, and whose name is subscribed hereto, hereby dedicate to the use of the public forever all streets, alleys, parks, water courses, drains, easements and public places thereon shown on the purpose and consideration therein expressed. I further certify that all other parties who have a mortgage or lien interest in the RAINBO ACRES ADDITION, LOT 18, addition have been notified and signed this plat. I understand and do hereby reserve the easement strips shown on this plat for the purposes stated and for the mutual use and accommodation of all utilities desining to use or using same. I also understand the following:

- No buildings shall be constructed or placed upon, over, or across the utility easements as described herein.
- Any public utility shall have the right to remove and keep removed all or part of any buildings, fences, trees, shrubs, or other growths or improvements which in any way endanger or interfere with construction, maintenance or efficiency of their respective system on any of these easement strips; and any public utility shall at all times have the right of ingress or egress to, from and upon the said easement strips for purpose of construction, reconstruction, inspecting, patrolling, maintaining, and either adding to or removing all or part of their respective system without the necessity of, at any time, procuring the permission of anyone.
- The City of Rockwall will not be responsible for any claims of any nature resulting from or occasioned by the establishment of grade of streets in the subdivision.
- The developer and subdivision engineer shall bear total responsibility for storm drain improvements.
- The developer shall be responsible for the necessary facilities to provide drainage patterns and drainage controls such that properties within the drainage area are not adversely affected by storm drainage from the development.
- No house dwelling unit, or other structure shall be constructed on any lot in this addition by the owner or any other person until the developer and/or owner has complied with all requirements of the Subdivision Regulations of the City of Rockwall regarding improvements with respect to the entire block on the street or streets on which property abuts, including the actual installation of streets with the required base and paving, curb and gutter, water and sewer, drainage structures, storm structures, storm sewers, and alleys, all according to the specifications of the City of Rockwall; or

Until an escrow deposit, sufficient to pay for the cost of such improvements, as determined by the city's engineer and/or city administrator, computed on a private commercial rate basis, has been made with the city secretary, accompanied by an agreement signed by the developer and/or owner, authorizing the city to make such improvements at prevailing private commercial rates, or have the same made by a contractor and pay for the same out of the escrow deposit, should the developer and/or owner fail or refuse to install the required improvements within the time stated in such written agreement, but in no case shall the City be obligated to make such improvements itself. Such deposit may be used by the owner and/or developer as progress payments as the work progresses in making such improvements by making certified requisitions to the city secretary, supported by evidence of work done; or

Until the developer and/or owner files a corporate surety bond with the city secretary in a sum equal to the cost of such improvements for the designated area, guaranteeing the installation thereof within the time stated in the bond, which time shall be fixed by the city council of the City of Rockwall.

I further acknowledge that the dedications and/or exaction's made herein are proportional to the impact of the Subdivision upon the public services required in order that the development will comport with the present and future growth needs of the City; I, my successors and assigns hereby waive any claim, damage, or cause of action that we may have as a result of the dedication of exactions made herein.

OWNERS M & J RANCH TRAIL HOLDINGS, LLC

Witness our hands on \_\_\_\_ day of \_\_\_\_\_, 2023.

MICHAEL DAUL - OWNER

JOHN MCKINNEY - OWNER

State of Texas

County of \_\_\_\_\_

Before me, the undersigned , a notary public for said County and State , appeared \_\_\_\_\_, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purposes and considerations therein expressed.

GIVEN MY HAND AND SEAL OF OFFICE this the \_\_\_\_ day of \_\_\_\_\_, 2023.

Notary Public in and for the County of \_\_\_\_\_, Texas.

State of Texas

County of \_\_\_\_\_

Before me, the undersigned , a notary public for said County and State , appeared \_\_\_\_\_, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purposes and considerations therein expressed.

GIVEN MY HAND AND SEAL OF OFFICE this the \_\_\_\_ day of \_\_\_\_\_, 2023.

Notary Public in and for the County of \_\_\_\_\_, Texas.

SURVEYOR/ENGINEER:

JACOB HOLMES (SURVEYOR)  
MITCH LENAMOND (ENGINEER)  
ERIC L. DAVIS ENGINEERING, INC.  
P.O. BOX 2637  
FORNEY, TX 75126  
(972) 564-0592

OWNER:

JOHN MCKINNEY / MICHAEL DUAL  
M & J RANCH TRAIL HOLDINGS, LLC  
315 RANCH TRAIL  
ROCKWALL, TEXAS 75032

DATE PREPARED: 12/01/2023

REPLAT OF  
RAINBO ACRES ADDITION, LOT 18

LOTS 18A & 18B

2 LOTS

4.986 ACRES / 217,178 SQ FT

SITUATED IN THE

CITY OF ROCKWALL

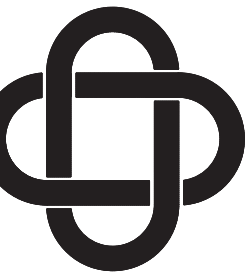
ROCKWALL COUNTY, TEXAS

SHEET 3 OF 3

ERIC L. DAVIS ENGINEERING, INC.  
FIRM NO. 10194489  
401 PINSON RD  
Forney, Texas 75126  
972/564-0592 Fax 972/564-6523  
E-Mail ericdavis@eldengineering.com







ERIC L. DAVIS ENGINEERING, INC.  
P-3987  
401 Pinson Rd.  
Forney, Texas 75126  
972/564-0592 Fax 972/564-6523  
E-Mail ericdavis@eldengineering.com

PAVING PLAN  
ENGINEERED FOR:  
M & J RANCH  
HOLDINGS LLC

BUILDER: M&J RANCH TRAILS HOLDING, LLC  
ADDITION: RAINBOW ACRES  
ADDRESS: 365 RANCH TRAIL  
LOT: 18A BLOCK: A  
CITY: ROCKWALL, TEXAS  
PLAN: PAVING PLAN  
ELD JOB NO.:  
DRAWN BY: GT  
FIRM REGISTRATION #: 3987

SCALE: 1"=20'

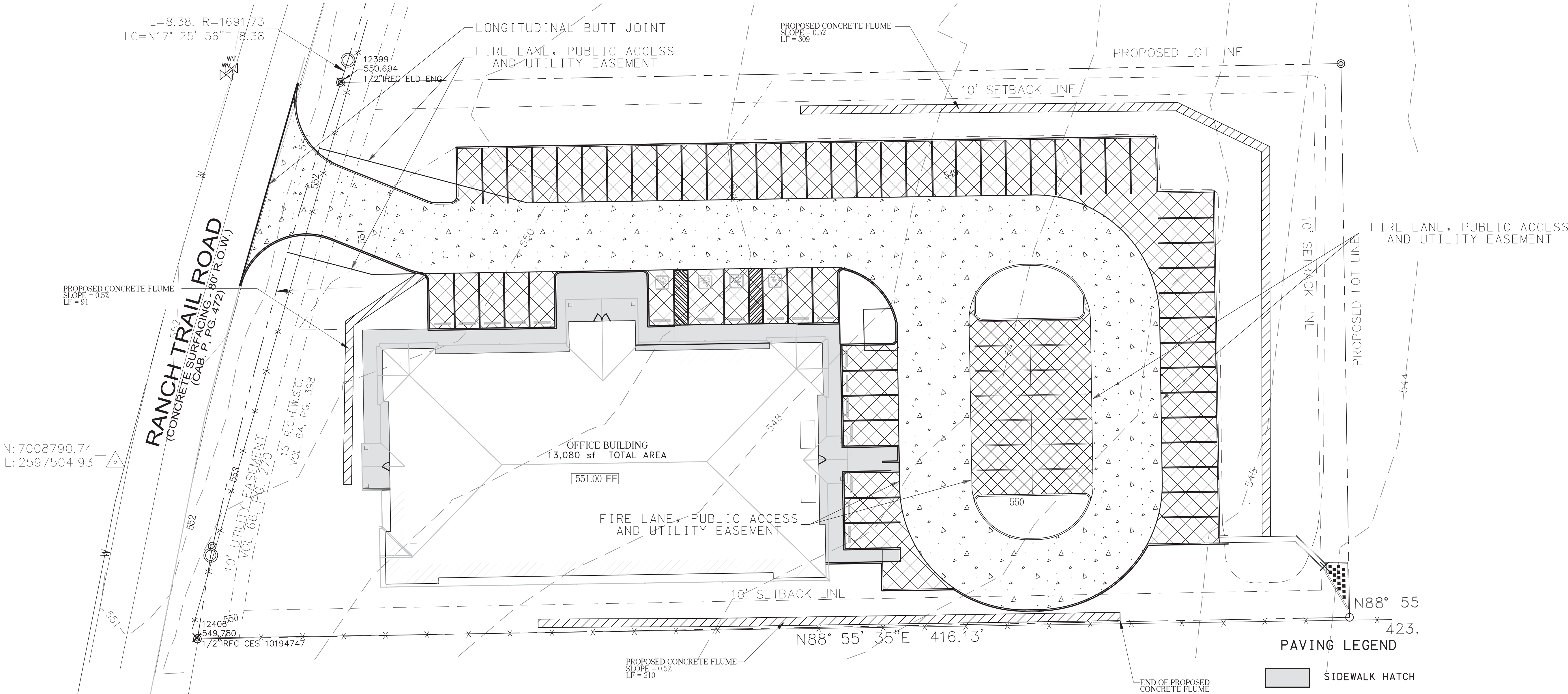
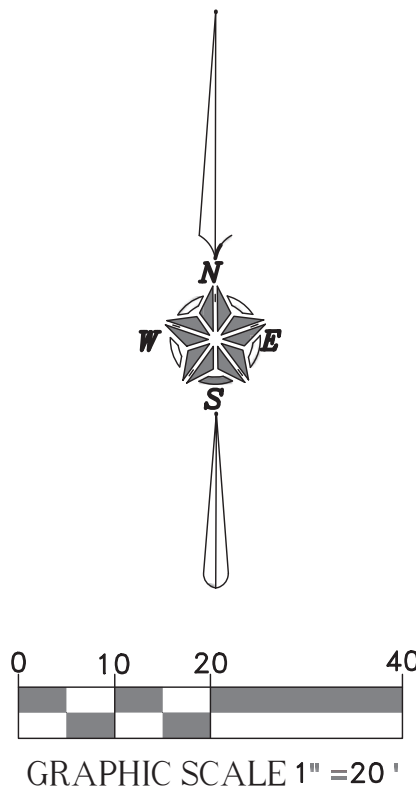
SHEET 09

PAVING REQUIREMENTS

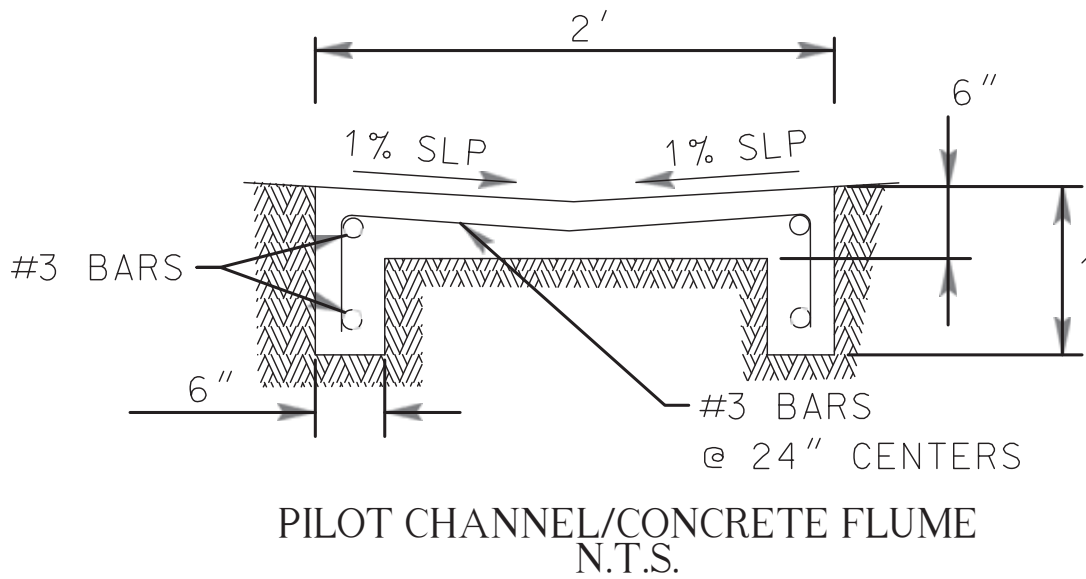
| SECTION  | DRIVE / FIRE LANE                                                                                                                          | PARKING                                             | SIDEWALK                                                 | CONCRETE FLUME                                           |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| PAVING   | 6" - 4000 PSI MIN. 6.5 SACK CONC #4 BARS @ 18" OCEW<br>DRIVE APPROACH #4 BARS @ 18" OCEW                                                   | 5" - 3600 PSI MIN. 6.5 SACK CONC #3 BARS @ 18" OCEW | 4" - 3000 PSI CONC MIN. 5.5 SACK CONC #3 BARS @ 24" OCEW | 4" - 3000 PSI CONC MIN. 5.5 SACK CONC #3 BARS @ 24" OCEW |
| SUBGRADE | 6" - 8% MINIMUM LIME STABILIZED SUBGRADE TO PI 15 AT +2 OR HIGHER OF OPTIMUM OR AS SPECIFIED BY GEOTECHNICAL REPORT. NO SAND UNDER PAVING. |                                                     | COMPACTED TO 95% STANDARD PROCTOR. NO SAND UNDER PAVING  | COMPACTED TO 95% STANDARD PROCTOR. NO SAND UNDER PAVING  |

SUBGRADE PREPARATION, AS A MINIMUM, SHOULD INCLUDE:

- A. STRIP VEGETATION AND ORGANIC MATERIALS.  
B. PROOFROLL EXPOSED SUBGRADE PER GEOTECHNICAL RECOMMENDATIONS.  
C. SCARIFY EXPOSED SUBGRADE TO A DEPTH OF 6"-. WATER AND COMPACT AS NECESSARY TO ACHIEVE 95% OF ASTM D-698 DENSITY AT +2% OR HIGHER OF OPTIMUM MOISTURE.  
D. EXCAVATED AREAS MAY BE BACKFILLED WITH CLEAN ON-SITE SOILS PLACED IN LOOSE LIFTS NO GREATER THAN 8" THICK AND COMPACTED AS OUTLINED ABOVE.



RECORD DRAWINGS  
THE SIGNED AND SEALED CONSTRUCTION DOCUMENT HAS BEEN REVISED TO REFLECT CONSTRUCTION RECORDS MAINTAINED AND PROVIDED BY THE CONTRACTOR FOR THIS PROJECT. THE INFORMATION SHOWN ON THIS RECORD DRAWING, WHICH WAS A WITH THE DESIGN ENGINEER, CANNOT BE VERIFIED FOR ACCURACY OR COMPLETENESS. CORNERSTONE SHALL ASSUME NO LIABILITY FOR ANY CHANGES MADE DURING CONSTRUCTION THAT WERE NOT SPECIFICALLY APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. THE SEALED CONSTRUCTION DRAWINGS ARE ON FILE AT THE OFFICES OF CORNERSTONE  
ATTESTED BY: MITCH LENAMOND, P.E. #92714  
SIGNATURE: *[Signature]*  
ENGINEER OF RECORD: MITCH LENAMOND, P.E. #92714  
CONTRACTOR:  
DATE REVISED: 10/24/2025



NOTES:  
ANY FILL PLACED IN PAVEMENT LOCATIONS SHALL BE COMPACTED WITH A SHEEPSFOOT ROLLER TO 95% OF THE STANDARD PROCTOR DENSITY.  
FIRE LANES SHALL BE MARKED BY 6" WIDE, DURABLE RED STRIPE RUNNING THE ENTIRE LENGTH OF THE FIRE LANE ON BOTH SIDES. THE WORDS "FIRE LANE NO PARKING" SHALL BE APPLIED IN 4" WHITE LETTERING AT 30' INTERVALS. WHENEVER POSSIBLE, ALL MARKINGS WILL BE PLACED ON CURBS.  
SAWED CONTRACTION (DUMMY) JOINTS SPACED AT 15'-0" MAX AND EXPANSION JOINTS AT 90'-0" MAX IN PAVING.

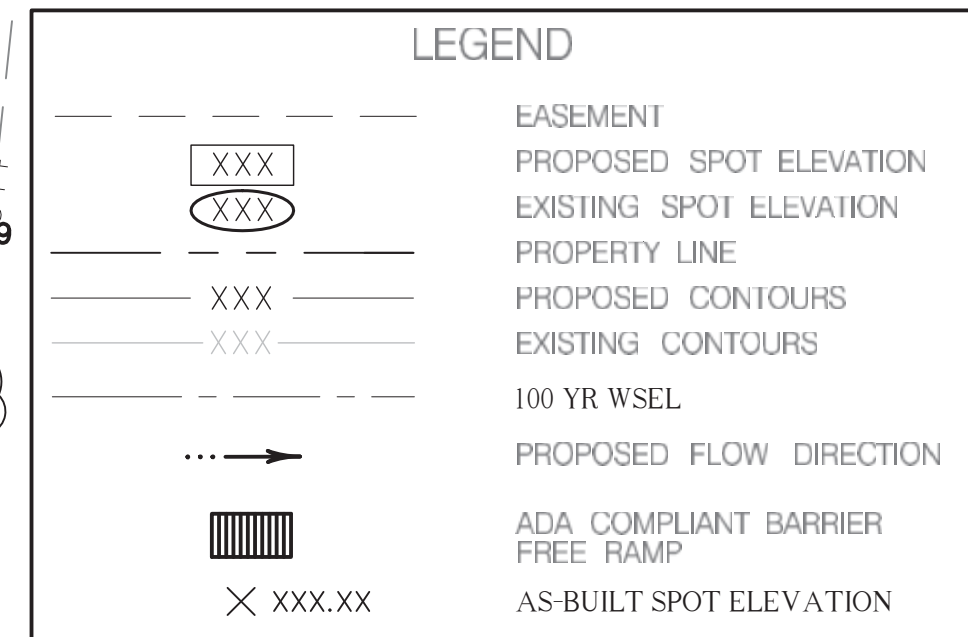
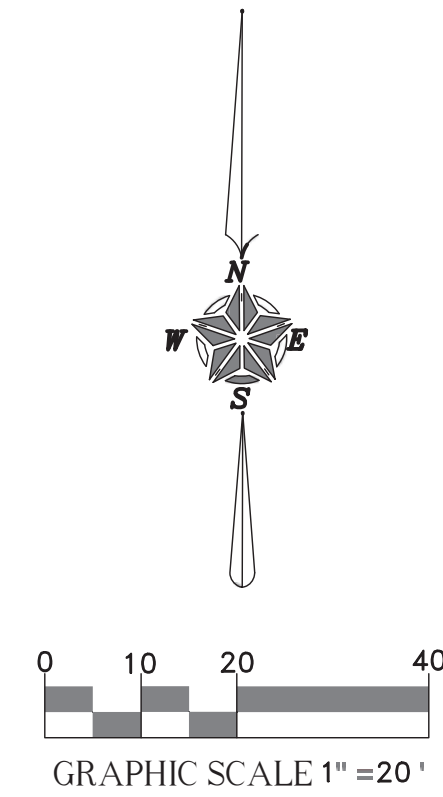




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SIGNATURE: [Signature]

DATE REVISED: 10/24/2025

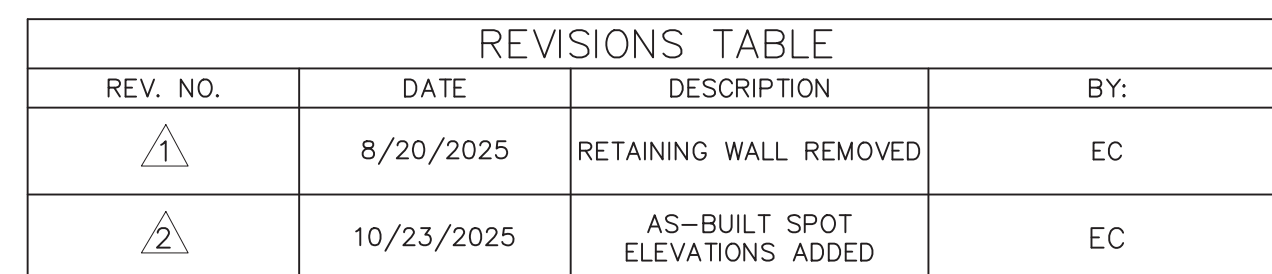


ALL SPOT ELEVATIONS WITH ARROWS ARE TOP OF CURB.  
ALL OTHER ARE TOP OF PAVEMENT OR TOP OF GROUND.

THE CROSS SLOPE IN THE AREA OF THE PEDESTRIAN CROSSING IS NOT TO EXCEED 2%

ALL SLOPES ARE LIMITED TO A MAXIMUM OF 4 HORIZONTAL TO 1 VERTICAL FOR ANY PERMANENT CONDITION. IN ADDITION ANY SLOPES BEING LEFT IN A TEMPORARY CONDITION (FROM THE TIME OF INITIAL GRADING UNTIL ESTABLISHMENT OF PERMANENT GRADES AND GROUND COVER) SHALL NOT EXCEED 2 HORIZONTAL TO 1 VERTICAL. CUTS SHALL BE LEFT AS STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL BE LEFT FOR A PERIOD OF TIME LONGER THAN 14 DAYS.

ALL WALLS 18" AND OVER MUST BE ROCK OR STONE FACED.  
SMOOTH WALL NOT ALLOWED.



401 Pinson Rd.  
Forney, Texas 75126  
972/564-0592 Fax 972/564-6523  
E-Mail [ericdavis@eldengineering.com](mailto:ericdavis@eldengineering.com)

ENGINEERED FOR:  
O. IDA AND

M & J RANCH  
HOLDINGS LLC

|            |          |                           |
|------------|----------|---------------------------|
| LEVOT: USA | DELOC: K | FIRM REGISTRATION #: 3957 |
| CITY       | ROCKWELL | TELEAC                    |

SHEET 10



RECORD DRAWINGS

THE SIGNED AND SEALED CONSTRUCTION DOCUMENT HAS BEEN REVISED TO REFLECT CONSTRUCTION RECORDS MAINTAINED AND PROVIDED BY THE CONTRACTOR FOR THIS PROJECT. THE INFORMATION SHOWN ON THIS RECORD DRAWING, WHICH WAS A WITH THE DESIGN ENGINEER, CANNOT BE VERIFIED FOR ACCURACY OR COMPLETENESS. CORNERSTONE SHALL ASSUME NO LIABILITY FOR ANY CHANGES MADE DURING CONSTRUCTION THAT WERE NOT SPECIFICALLY APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. THE SEALED CONSTRUCTION DRAWINGS ARE ON FILE AT THE OFFICES OF CORNERSTONE

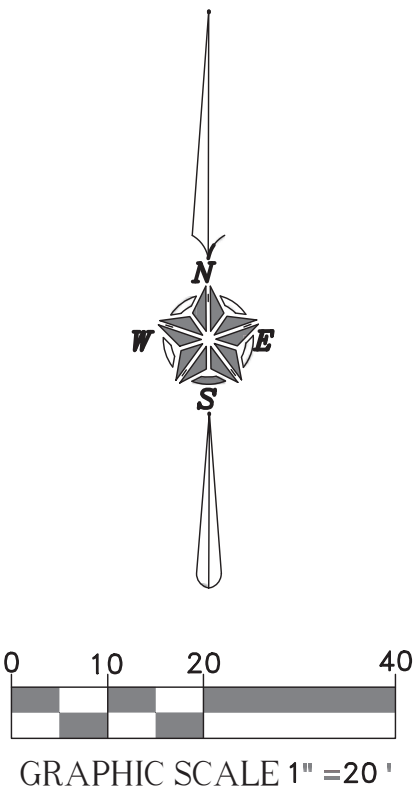
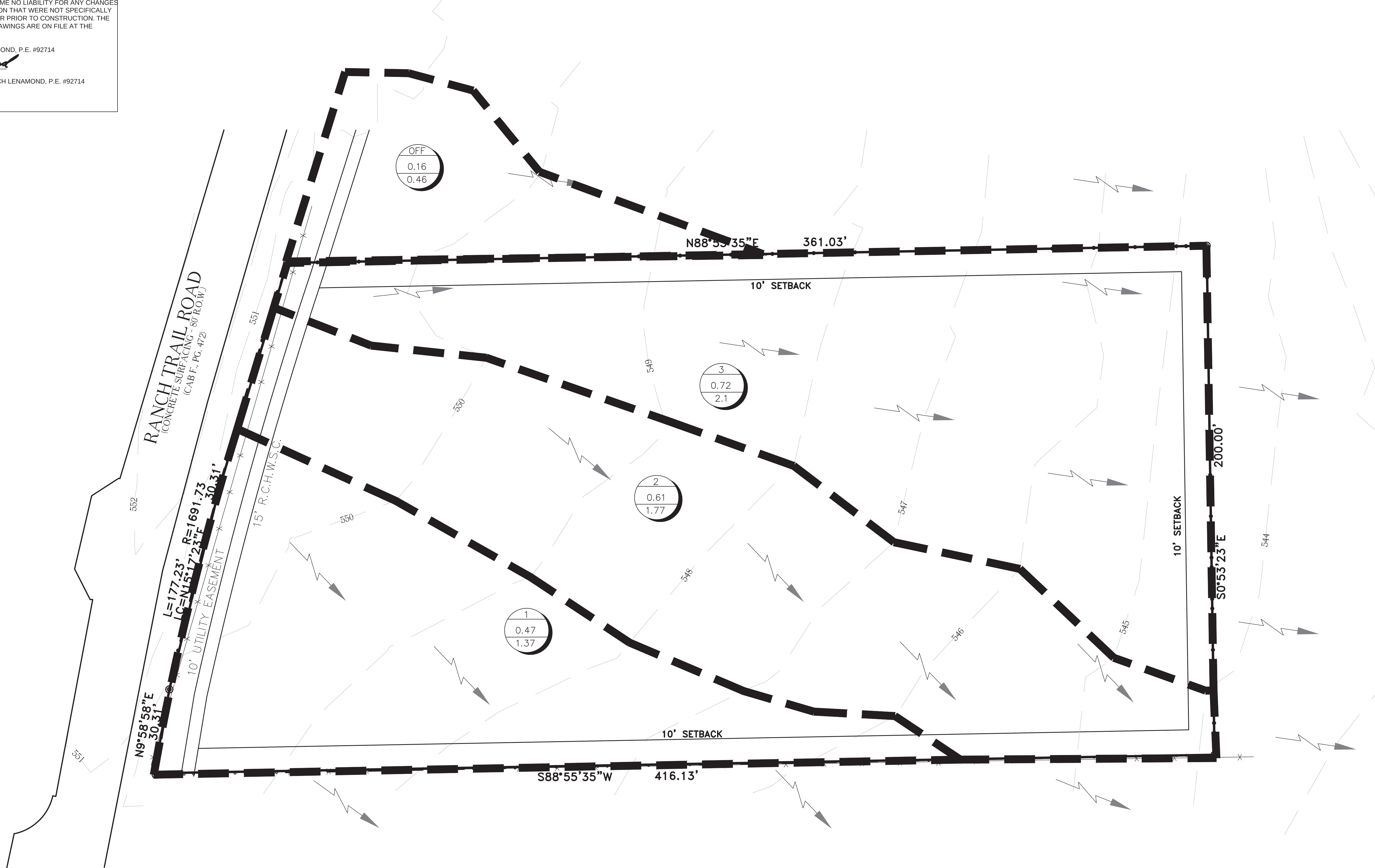
ATTESTED BY: MITCH LENAMOND, P.E. #92714

SIGNATURE: *[Signature]*

ENGINEER OF RECORD: MITCH LENAMOND, P.E. #92714

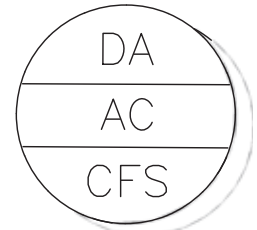
CONTRACTOR:

DATE REVISED: 10/24/2025

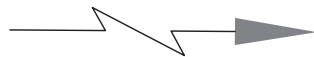


PRE-DEVELOPMENT DRAINAGE CALCULATIONS

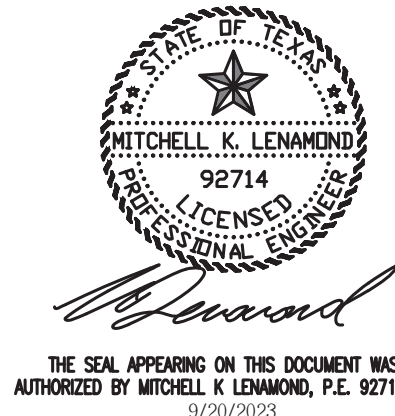
| DRAINAGE AREA NO. | AREA ACRES | "C" EXIST | Tc MIN. | I <sub>100</sub> (IN/HR) | EXIST Q <sub>100</sub> (CFS) | DRAINS TO    |
|-------------------|------------|-----------|---------|--------------------------|------------------------------|--------------|
| 1                 | 0.47       | 0.35      | 20      | 8.30                     | 1.37                         | WALLACE LAKE |
| 2                 | 0.61       | 0.35      | 20      | 8.30                     | 1.77                         | WALLACE LAKE |
| 3                 | 0.72       | 0.35      | 20      | 8.30                     | 2.1                          | WALLACE LAKE |
| 4                 | 0.16       | 0.35      | 20      | 8.30                     | 0.46                         | WALLACE LAKE |
| SUMMARY           | 1.96       | 0.35      | 20      | 8.30                     | 5.69                         | WALLACE LAKE |



DRAINAGE AREA NO.  
AREA (ACRES)  
Q<sub>100</sub> (CFS)



FLOW DIRECTION



9/20/2023

ERIC L. DAVIS ENGINEERING, INC.  
F-3987  
401 Pinson Rd.  
Forney, Texas 75126  
972/564-0592 Fax 972/564-6523  
E-Mail ericdavis@eldengineering.com

EXISTING DRAINAGE PLAN

ENGINEERED FOR:

M & J RANCH HOLDINGS LLC

|                                        |                           |
|----------------------------------------|---------------------------|
| BUILDER: M&J RANCH TRAILS HOLDING, LLC | PLAN: EXISTING DRAINAGE   |
| ADDITION: RAINBOW ACRES                | ELD JOB NO.:              |
| ADDRESS: 365 RANCH TRAIL               | DRAWN BY: GT              |
| LOT: 18A BLOCK: A                      | FIRM REGISTRATION #: 3987 |
| CITY: ROCKWALL, TEXAS                  |                           |

SCALE: 1"=20'

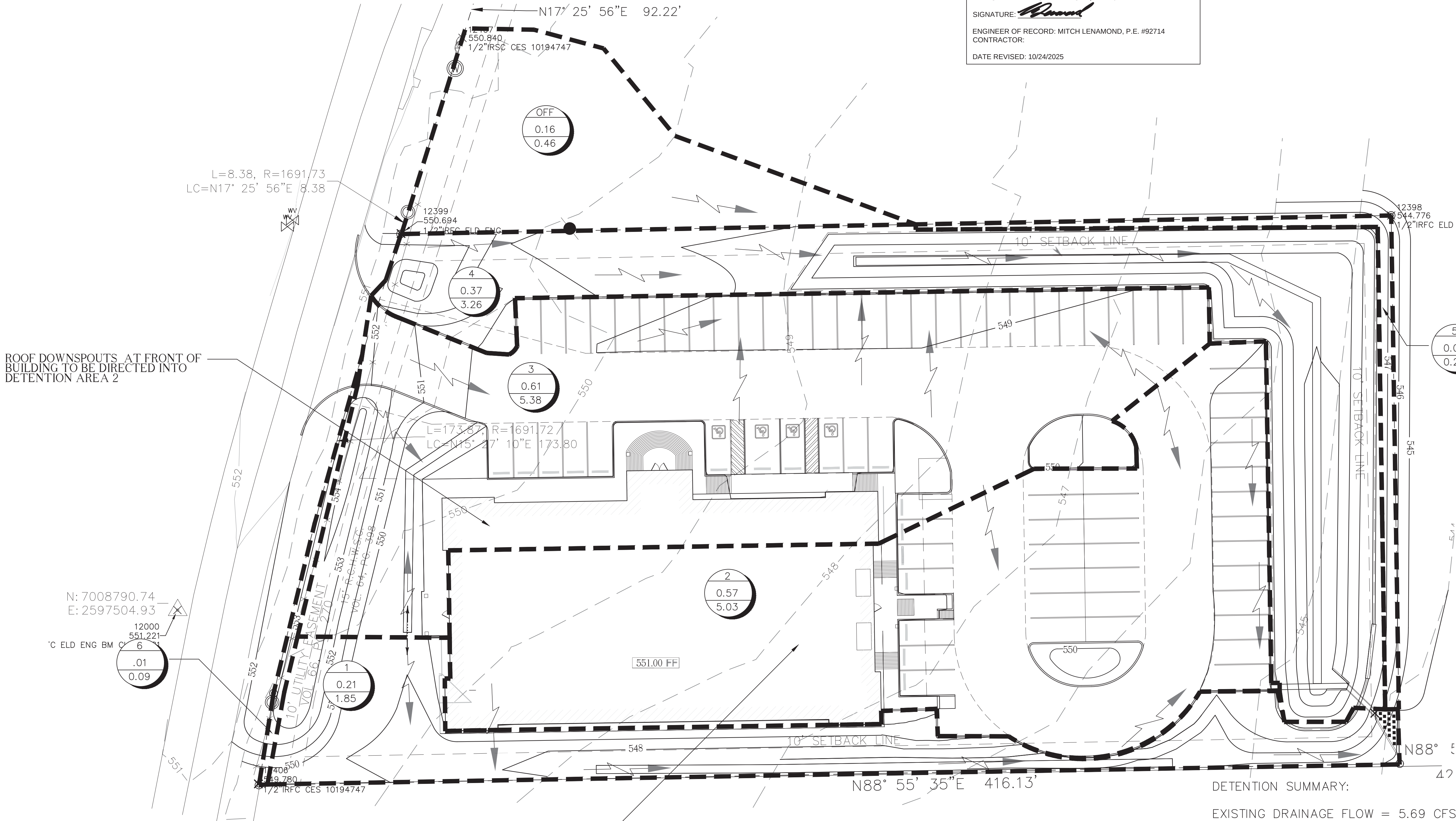
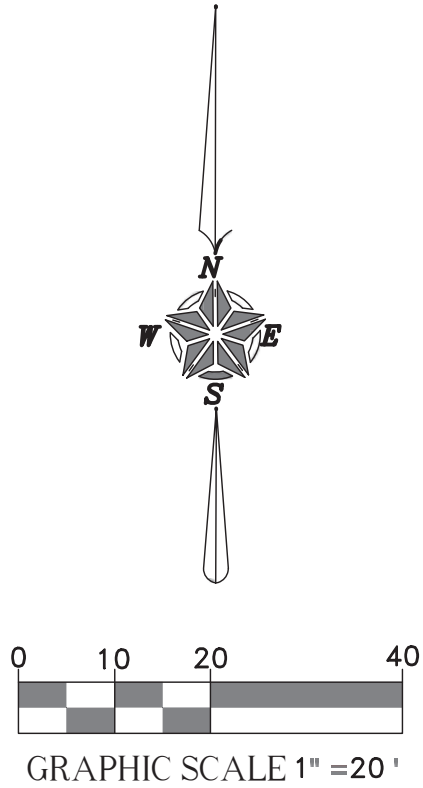
SHEET 11



| REVISIONS |           |                        |     |
|-----------|-----------|------------------------|-----|
| REV. NO.  | DATE      | DESCRIPTION            | BY: |
| 1         | 8/20/2025 | RETAINING WALL REMOVED | EC  |

**RECORD DRAWINGS**  
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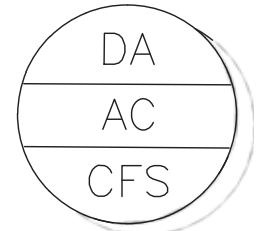
ATTESTED BY: MITCH LENAMOND, P.E. #92714  
SIGNATURE: *[Signature]*  
ENGINEER OF RECORD: MITCH LENAMOND, P.E. #92714  
CONTRACTOR:  
DATE REVISED: 10/24/2025



DETENTION SUMMARY:  
EXISTING DRAINAGE FLOW = 5.69 CFS  
PROPOSED DRAINAGE FLOW = 14.13 CFS  
AMOUNT OF FLOW REQUIRED TO BE DETAINED = (14.13 - 5.69) = 8.44 CFS  
AMOUNT OF FLOW TO BE DETAINED = (14.13 - 3.13 - 0.26 - 1.85) = 8.89 CFS  
UNDETAINED BYPASS FLOW (0.26 + 1.85) = 2.11 CFS

POST-DEVELOPMENT DRAINAGE CALCULATIONS

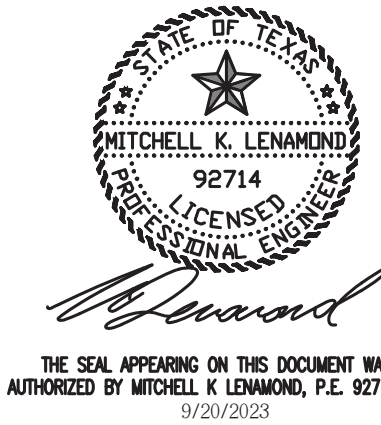
| DRAINAGE AREA NO. | AREA ACRES | "C" PROP. | Tc MIN. | I <sub>100</sub> (IN/HR) | PROP. Q <sub>100</sub> (CFS) | DRAINS TO        |
|-------------------|------------|-----------|---------|--------------------------|------------------------------|------------------|
| 1                 | 0.21       | 0.90      | 10      | 9.80                     | 1.85                         | BYPASS           |
| 2                 | 0.57       | 0.90      | 10      | 9.80                     | 5.03                         | DETENTION AREA 1 |
| 3                 | 0.61       | 0.90      | 10      | 9.80                     | 5.38                         | DETENTION AREA 2 |
| 4                 | 0.37       | 0.90      | 10      | 9.80                     | 3.26                         | DETENTION AREA 3 |
| 5                 | 0.03       | 0.90      | 10      | 9.80                     | 0.26                         | BYPASS           |
| OFF               | 0.16       | 0.35      | 20      | 8.30                     | 0.46                         | DETENTION POND 3 |
| 6                 | 0.01       | 0.90      | 10      | 9.80                     | 0.09                         | RANCH TRAIL      |
| TOTAL             | 1.96       | -         | -       | -                        | 16.24                        | -                |



DRAINAGE AREA NO.  
AREA (ACRES)  
Q<sub>100</sub> (CFS)



FLOW DIRECTION



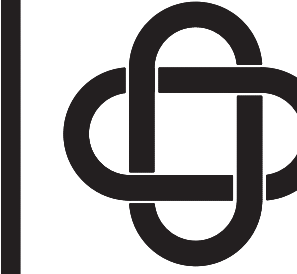
PROPOSED DRAINAGE MAP  
ENGINEERED FOR:  
**M & J RANCH HOLDINGS LLC**

|                                        |                             |
|----------------------------------------|-----------------------------|
| BUILDER: M&J RANCH TRAILS HOLDING, LLC | PLAN: PROPOSED DRAINAGE MAP |
| ADDITION: RAINBOW ACRES                | ELD JOB NO.:                |
| ADDRESS: 365 RANCH TRAIL               | DRAWN BY: GT                |
| LOT: 18A BLOCK: A                      | FIRM REGISTRATION #: 3987   |
| CITY: ROCKWALL, TEXAS                  |                             |

SCALE: 1"=20'

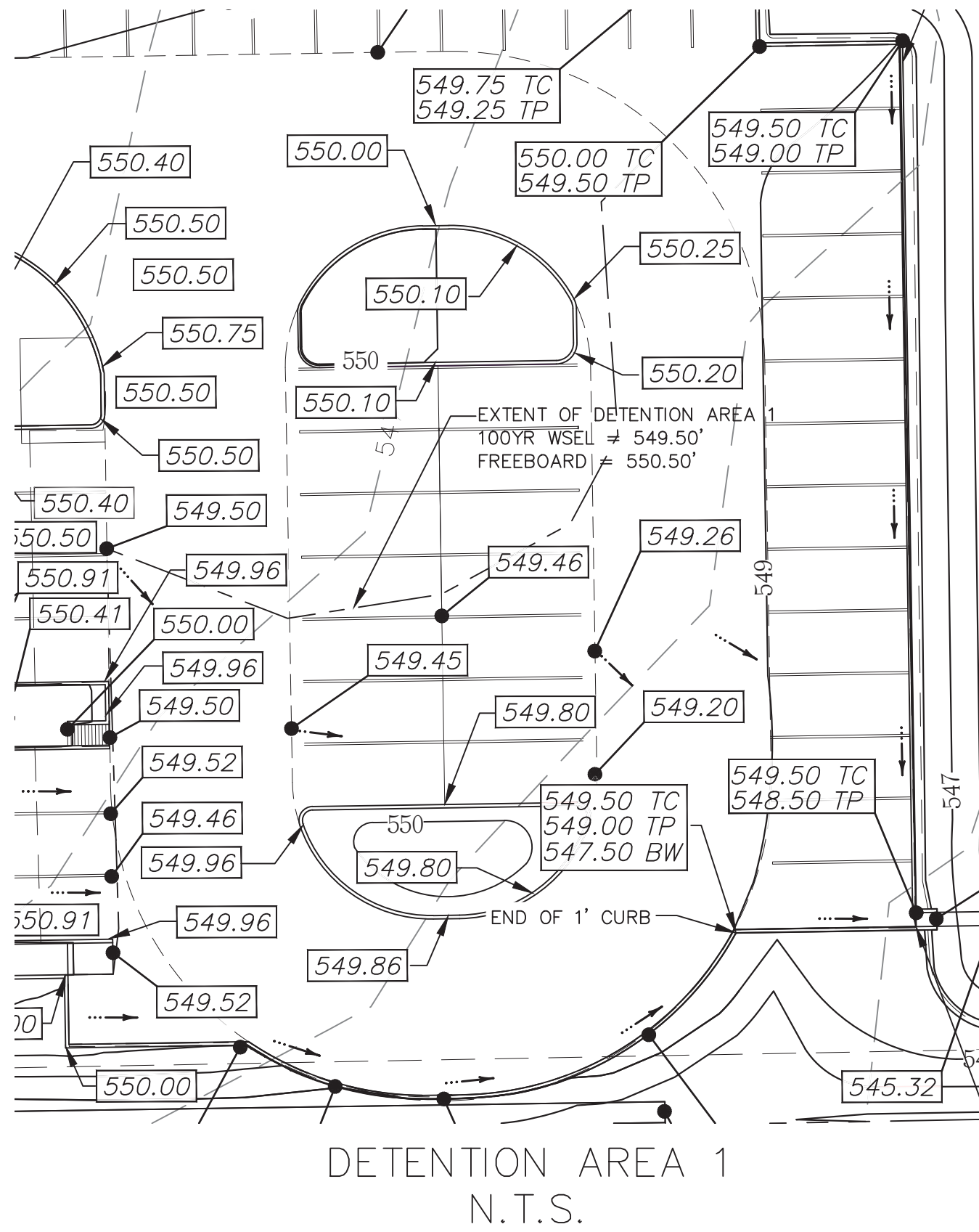
SHEET 12

9/20/2023

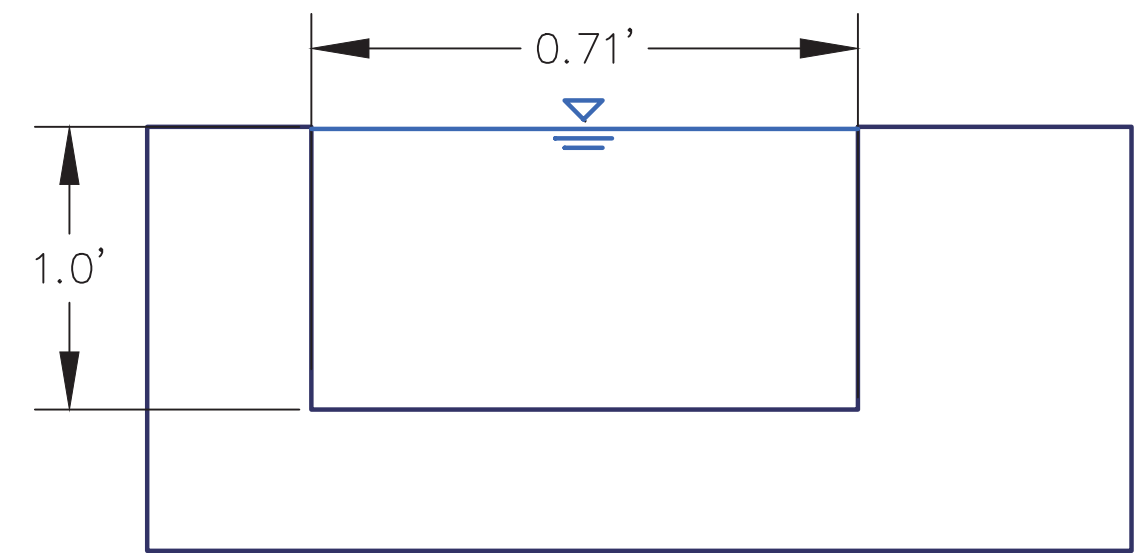


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DETENTION AREA 1  
DRAINS TO DETENTION AREA 3  
 $Q_{100} \text{ (SITE)} = (0.57 \times 0.9 \times 9.8) = 5.03 \text{ CFS}$   
 $Q_{100} \text{ (DETAINED OUTFLOW)} = 2.35 \text{ CFS}$



WEIR STRUCTURE FOR DETENTION AREA 1  
MAX FLOW = 2.35 CFS  
N.T.S.

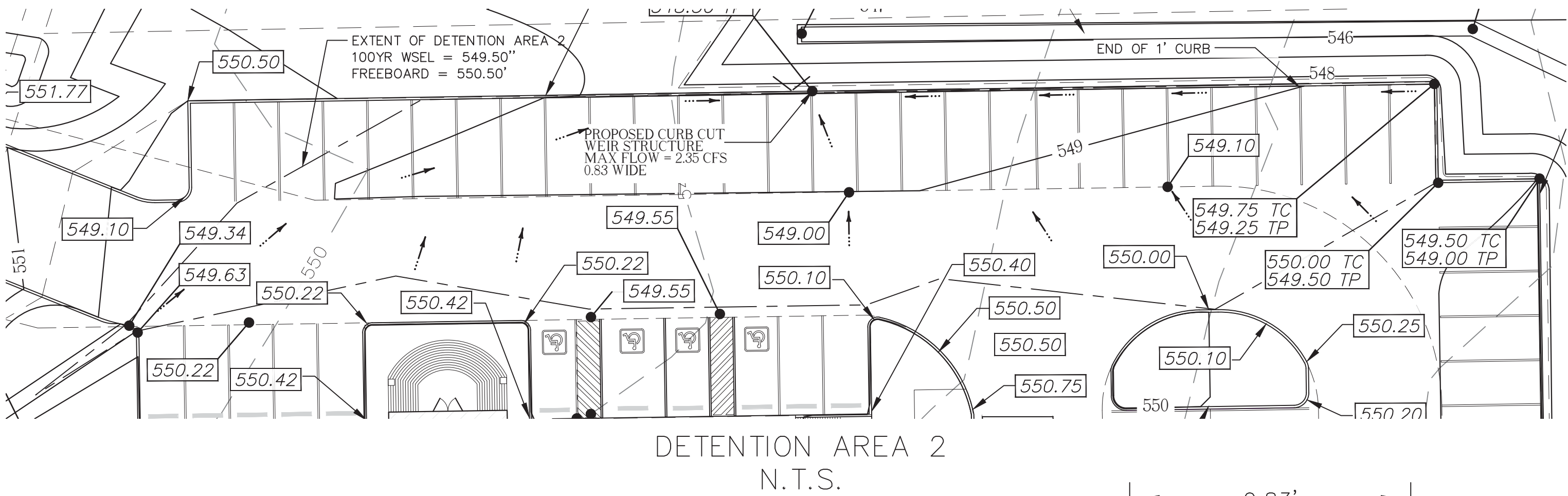
| MIN | I   | Q                          |
|-----|-----|----------------------------|
| 10  | 9.8 | (0.90)(9.8)(0.57)=5.03 CFS |
| 15  | 9.0 | (0.90)(9.0)(0.57)=4.62 CFS |
| 20  | 8.3 | (0.90)(8.3)(0.57)=4.26 CFS |
| 30  | 6.9 | (0.90)(6.9)(0.57)=3.54 CFS |
| 40  | 5.8 | (0.90)(5.8)(0.57)=2.98 CFS |
| 50  | 5.0 | (0.90)(5.0)(0.57)=2.57 CFS |
| 60  | 4.5 | (0.90)(4.5)(0.57)=2.31 CFS |
| 70  | 4.0 | (0.90)(4.0)(0.57)=2.05 CFS |
| 80  | 3.7 | (0.90)(3.7)(0.57)=1.90 CFS |
| 90  | 3.5 | (0.90)(3.5)(0.57)=1.80 CFS |
| 100 | 3.4 | (0.90)(3.4)(0.57)=1.74 CFS |
| 110 | 3.2 | (0.90)(3.2)(0.57)=1.64 CFS |
| 120 | 3.1 | (0.90)(3.1)(0.57)=1.59 CFS |

| MIN | INFLOW (IN)                           | OUTFLOW (OUT)                                   | STORAGE VOLUME (IN-OUT = SV) |
|-----|---------------------------------------|-------------------------------------------------|------------------------------|
| 10  | (10)(5.03 cfs)(60 sec/min)=3,016 cf   | (0.50)(20 min)(2.35 cfs)(60 sec/min)= 1,410 cf  | 1,606 cf                     |
| 15  | (15)(4.62 cfs)(60 sec/min)=4,155 cf   | (0.50)(25 min)(2.35 cfs)(60 sec/min)= 1,763 cf  | 2,393 cf                     |
| 20  | (20)(4.26 cfs)(60 sec/min)=5,109 cf   | (0.50)(30 min)(2.35 cfs)(60 sec/min)= 2,115 cf  | 2,994 cf                     |
| 30  | (30)(3.54 cfs)(60 sec/min)=6,371 cf   | (0.50)(40 min)(2.35 cfs)(60 sec/min)= 2,820 cf  | 3,551 cf                     |
| 40  | (40)(2.98 cfs)(60 sec/min)=7,141 cf   | (0.50)(50 min)(2.35 cfs)(60 sec/min)= 3,525 cf  | 3,616 cf                     |
| 50  | (50)(2.57 cfs)(60 sec/min)=7,695 cf   | (0.50)(60 min)(2.35 cfs)(60 sec/min)= 4,230 cf  | 3,465 cf                     |
| 60  | (60)(2.31 cfs)(60 sec/min)=8,311 cf   | (0.50)(70 min)(2.35 cfs)(60 sec/min)= 4,935 cf  | 3,376 cf                     |
| 70  | (70)(2.05 cfs)(60 sec/min)=8,618 cf   | (0.50)(80 min)(2.35 cfs)(60 sec/min)= 5,640 cf  | 2,978 cf                     |
| 80  | (80)(1.90 cfs)(60 sec/min)=9,111 cf   | (0.50)(90 min)(2.35 cfs)(60 sec/min)= 6,345 cf  | 2,766 cf                     |
| 90  | (90)(1.80 cfs)(60 sec/min)=9,696 cf   | (0.50)(100 min)(2.35 cfs)(60 sec/min)= 7,050 cf | 2,646 cf                     |
| 100 | (100)(1.74 cfs)(60 sec/min)=10,465 cf | (0.50)(110 min)(2.35 cfs)(60 sec/min)= 7,755 cf | 2,710 cf                     |
| 110 | (110)(1.64 cfs)(60 sec/min)=10,835 cf | (0.50)(120 min)(2.35 cfs)(60 sec/min)= 8,460 cf | 2,375 cf                     |
| 120 | (120)(1.59 cfs)(60 sec/min)=11,450 cf | (0.50)(130 min)(2.35 cfs)(60 sec/min)= 9,165 cf | 2,285 cf                     |

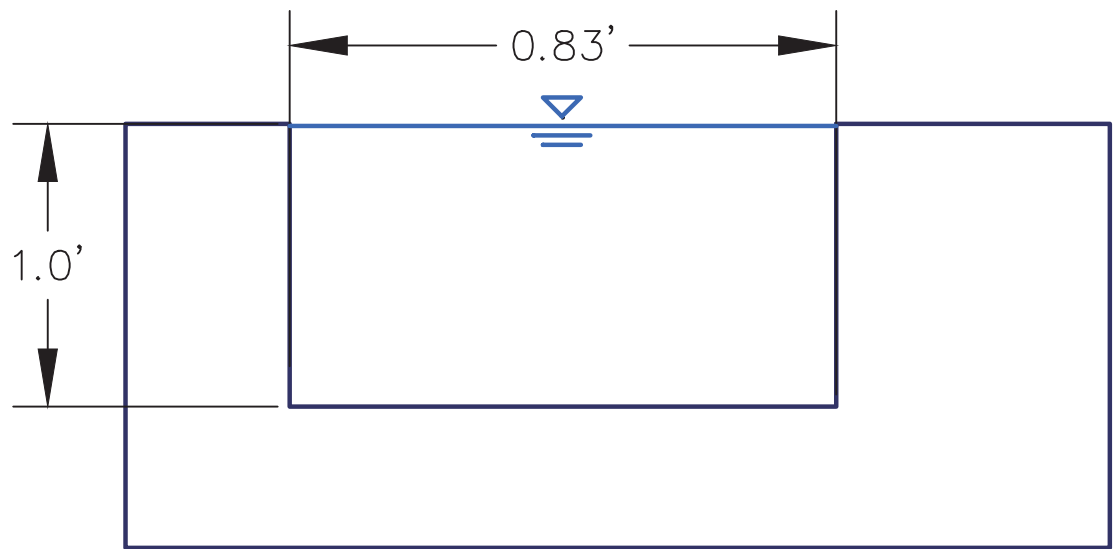
THE MAXIMUM VOLUME REQUIRED IS 3,616 CF AT THE 40-MIN STORM DURATION.

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ATTESTED BY: MITCH LENAMOND, P.E. #92714  
SIGNATURE:   
ENGINEER OF RECORD: MITCH LENAMOND, P.E. #92714  
CONTRACTOR:  
DATE REVISED: 10/24/2025

AS-BUILT NOTE:  
SEE GRADING PLAN FOR AS-BUILT ELEVATIONS



DETENTION AREA 2  
DRAINS TO DETENTION AREA 3  
 $Q_{100} \text{ (SITE)} = (0.61 \times 0.9 \times 9.8) = 5.38 \text{ CFS}$   
 $Q_{100} \text{ (DETAINED OUTFLOW)} = 2.74 \text{ CFS}$



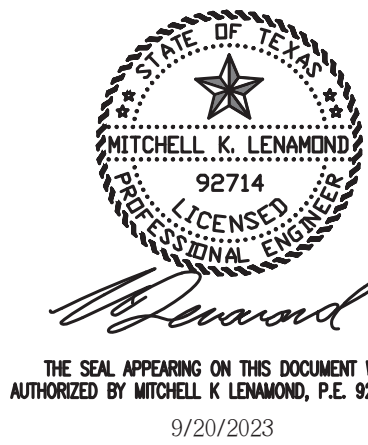
WEIR STRUCTURE FOR DETENTION AREA 2  
MAX FLOW = 2.74 CFS  
N.T.S.

| MIN | I   | Q                          |
|-----|-----|----------------------------|
| 10  | 9.8 | (0.90)(9.8)(0.61)=5.38 CFS |
| 15  | 9.0 | (0.90)(9.0)(0.61)=4.94 CFS |
| 20  | 8.3 | (0.90)(8.3)(0.61)=4.56 CFS |
| 30  | 6.9 | (0.90)(6.9)(0.61)=3.79 CFS |
| 40  | 5.8 | (0.90)(5.8)(0.61)=3.18 CFS |
| 50  | 5.0 | (0.90)(5.0)(0.61)=2.75 CFS |
| 60  | 4.5 | (0.90)(4.5)(0.61)=2.47 CFS |
| 70  | 4.0 | (0.90)(4.0)(0.61)=2.20 CFS |
| 80  | 3.7 | (0.90)(3.7)(0.61)=2.03 CFS |
| 90  | 3.5 | (0.90)(3.5)(0.61)=1.92 CFS |
| 100 | 3.4 | (0.90)(3.4)(0.61)=1.87 CFS |
| 110 | 3.2 | (0.90)(3.2)(0.61)=1.76 CFS |
| 120 | 3.1 | (0.90)(3.1)(0.61)=1.70 CFS |

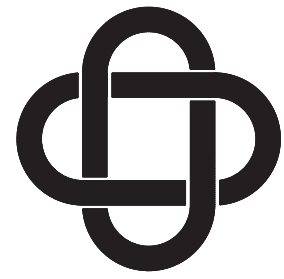
| DETENTION AREA 2 STAGE STORAGE TABLE |                |                           |                            |
|--------------------------------------|----------------|---------------------------|----------------------------|
| ELEV                                 | AREA (sq. ft.) | CONIC INC. VOL. (cu. ft.) | CONIC TOTAL VOL. (cu. ft.) |
| 548.600                              | 136.74         | N/A                       | 0.00                       |
| 548.700                              | 495.34         | 29.74                     | 29.74                      |
| 548.800                              | 1,075.81       | 76.70                     | 106.45                     |
| 548.900                              | 1,878.14       | 145.85                    | 252.30                     |
| 549.000                              | 2,930.94       | 238.51                    | 490.81                     |
| 549.100                              | 4,189.82       | 354.17                    | 844.97                     |
| 549.200                              | 5,472.20       | 481.68                    | 1326.65                    |
| 549.300                              | 6,778.09       | 611.35                    | 1938.00                    |
| 549.400                              | 8,107.47       | 743.29                    | 2681.29                    |
| 549.500                              | 9,460.36       | 877.52                    | 3558.81                    |

| MIN | INFLOW (IN)                           | OUTFLOW (OUT)                                    | STORAGE VOLUME (IN-OUT = SV) |
|-----|---------------------------------------|--------------------------------------------------|------------------------------|
| 10  | (10)(5.38 cfs)(60 sec/min)=3,228 cf   | (0.50)(20 min)(2.74 cfs)(60 sec/min)= 1,644 cf   | 1,584 cf                     |
| 15  | (15)(4.94 cfs)(60 sec/min)=4,447 cf   | (0.50)(25 min)(2.74 cfs)(60 sec/min)= 2,055 cf   | 2,392 cf                     |
| 20  | (20)(4.56 cfs)(60 sec/min)=5,468 cf   | (0.50)(30 min)(2.74 cfs)(60 sec/min)= 2,466 cf   | 3,002 cf                     |
| 30  | (30)(3.79 cfs)(60 sec/min)=6,819 cf   | (0.50)(40 min)(2.74 cfs)(60 sec/min)= 3,288 cf   | 3,531 cf                     |
| 40  | (40)(3.18 cfs)(60 sec/min)=7,642 cf   | (0.50)(50 min)(2.74 cfs)(60 sec/min)= 4,110 cf   | 3,532 cf                     |
| 50  | (50)(2.75 cfs)(60 sec/min)=8,235 cf   | (0.50)(60 min)(2.74 cfs)(60 sec/min)= 4,932 cf   | 3,303 cf                     |
| 60  | (60)(2.47 cfs)(60 sec/min)=8,894 cf   | (0.50)(70 min)(2.74 cfs)(60 sec/min)= 5,754 cf   | 3,140 cf                     |
| 70  | (70)(2.20 cfs)(60 sec/min)=9,223 cf   | (0.50)(80 min)(2.74 cfs)(60 sec/min)= 6,576 cf   | 2,647 cf                     |
| 80  | (80)(2.03 cfs)(60 sec/min)=9,750 cf   | (0.50)(90 min)(2.74 cfs)(60 sec/min)= 7,398 cf   | 2,352 cf                     |
| 90  | (90)(1.92 cfs)(60 sec/min)=10,376 cf  | (0.50)(100 min)(2.74 cfs)(60 sec/min)= 8,220 cf  | 2,156 cf                     |
| 100 | (100)(1.87 cfs)(60 sec/min)=11,200 cf | (0.50)(110 min)(2.74 cfs)(60 sec/min)= 9,042 cf  | 2,158 cf                     |
| 110 | (110)(1.76 cfs)(60 sec/min)=11,595 cf | (0.50)(120 min)(2.74 cfs)(60 sec/min)= 9,864 cf  | 1,731 cf                     |
| 120 | (120)(1.70 cfs)(60 sec/min)=12,254 cf | (0.50)(130 min)(2.74 cfs)(60 sec/min)= 10,686 cf | 1,568 cf                     |

THE MAXIMUM VOLUME REQUIRED IS 3,532 CF AT THE 40-MIN STORM DURATION.



9/20/2023



ERIC L. DAVIS ENGINEERING, INC.  
P-3987  
401 Pinson Rd.  
Forney, Texas 75126  
972/564-0592 Fax 972/564-6523  
E-Mail ericdavis@eldengineering.com

DETENTION POND LAYOUT

ENGINEERED FOR:

M & J RANCH  
HOLDINGS LLC

BUILDER: M&J RANCH TRAILS HOLDING, LLC

PLAN: PAYING PLAN

ELD JOB NO.:

DRAWN BY: GT

FIRM REGISTRATION #: 3987

CITY: ROCKWALL, TEXAS

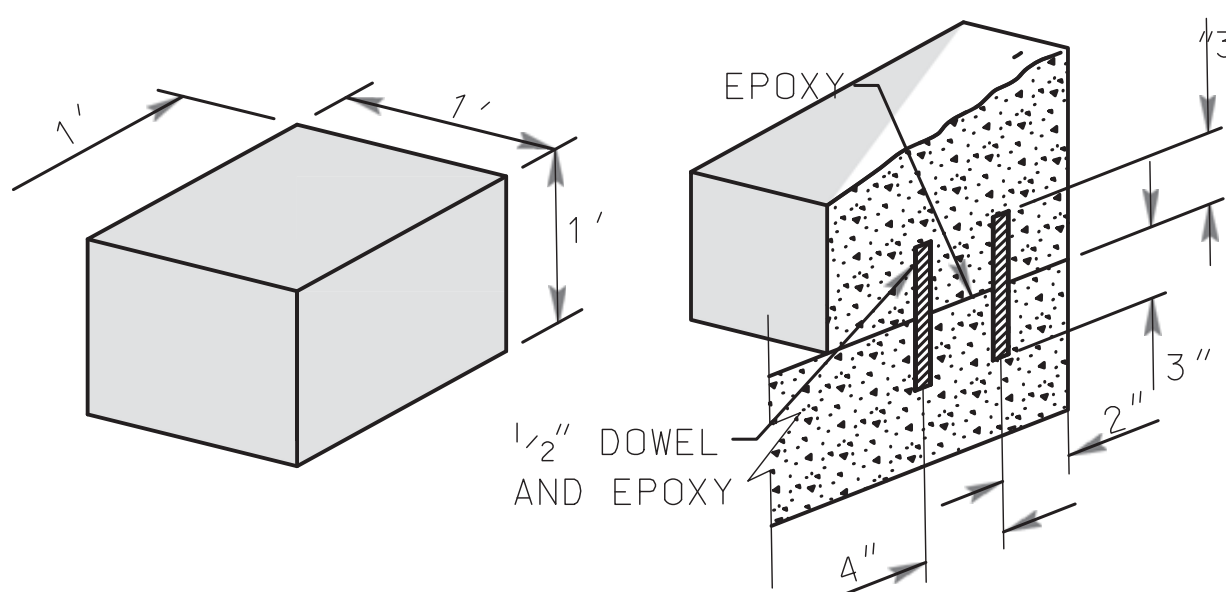
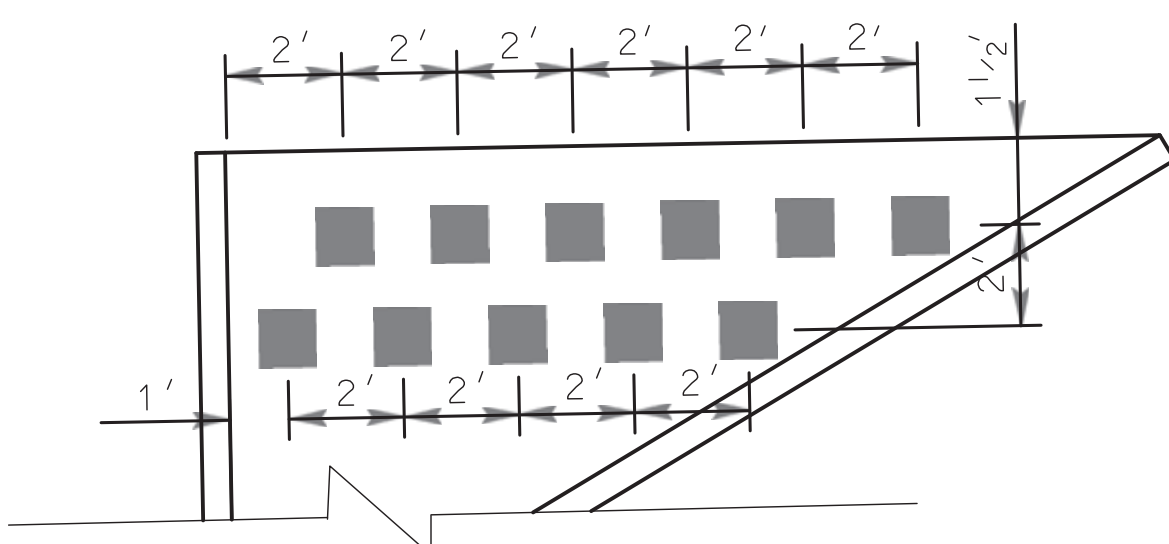
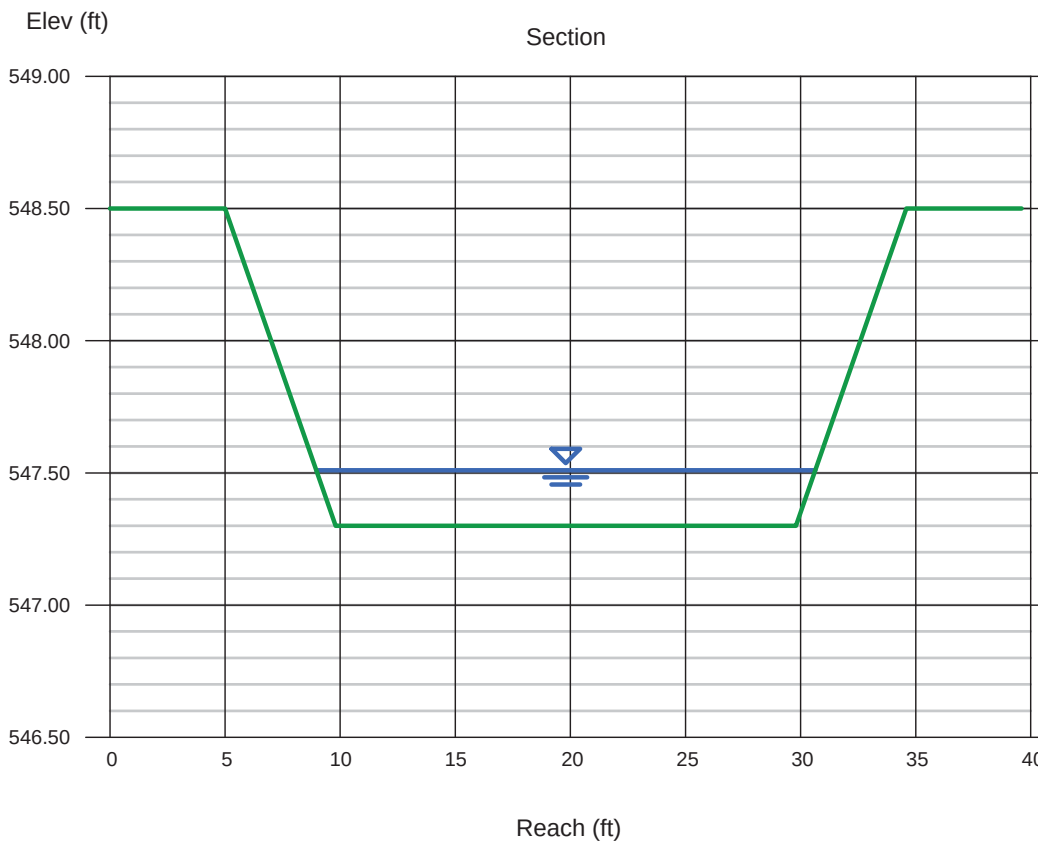
SCALE: 1"=20'

SHEET 13



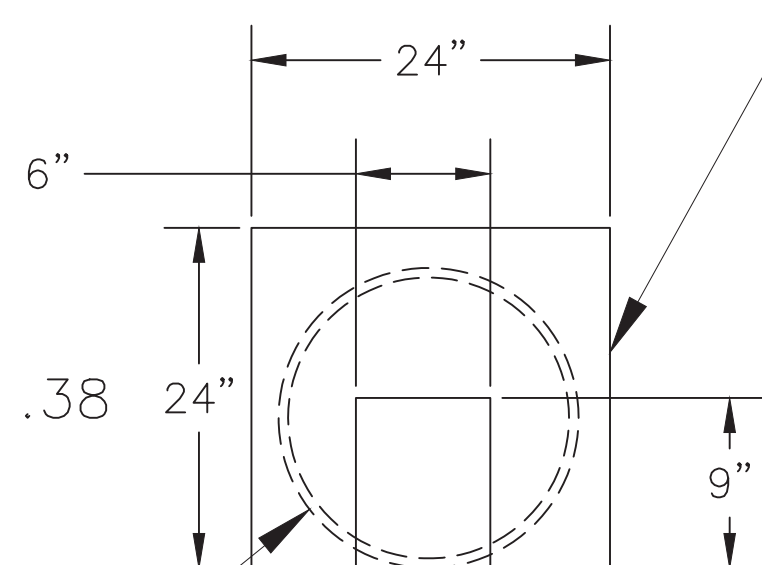
<EMERGENCY OVERTFLOW SECTION>

|                   |              |                     |         |
|-------------------|--------------|---------------------|---------|
| Trapezoidal       |              | Highlighted         |         |
| Bottom Width (ft) | = 20.00      | Depth (ft)          | = 0.21  |
| Side Slopes (Z:1) | = 4.00, 4.00 | Q (cfs)             | = 8.810 |
| Total Depth (ft)  | = 1.20       | Area (sqft)         | = 4.39  |
| Invert Elev (ft)  | = 547.30     | Velocity (ft/s)     | = 2.01  |
| Slope (%)         | = 1.00       | Wetted Perim (ft)   | = 21.73 |
| N-Value           | = 0.025      | Crit Depth, Yc (ft) | = 0.18  |
|                   |              | Top Width (ft)      | = 21.68 |
|                   |              | EGL (ft)            | = 0.27  |
| Calculations      |              |                     |         |
| Compute by:       | Known Q      |                     |         |
| Known Q (cfs)     | = 8.81       |                     |         |



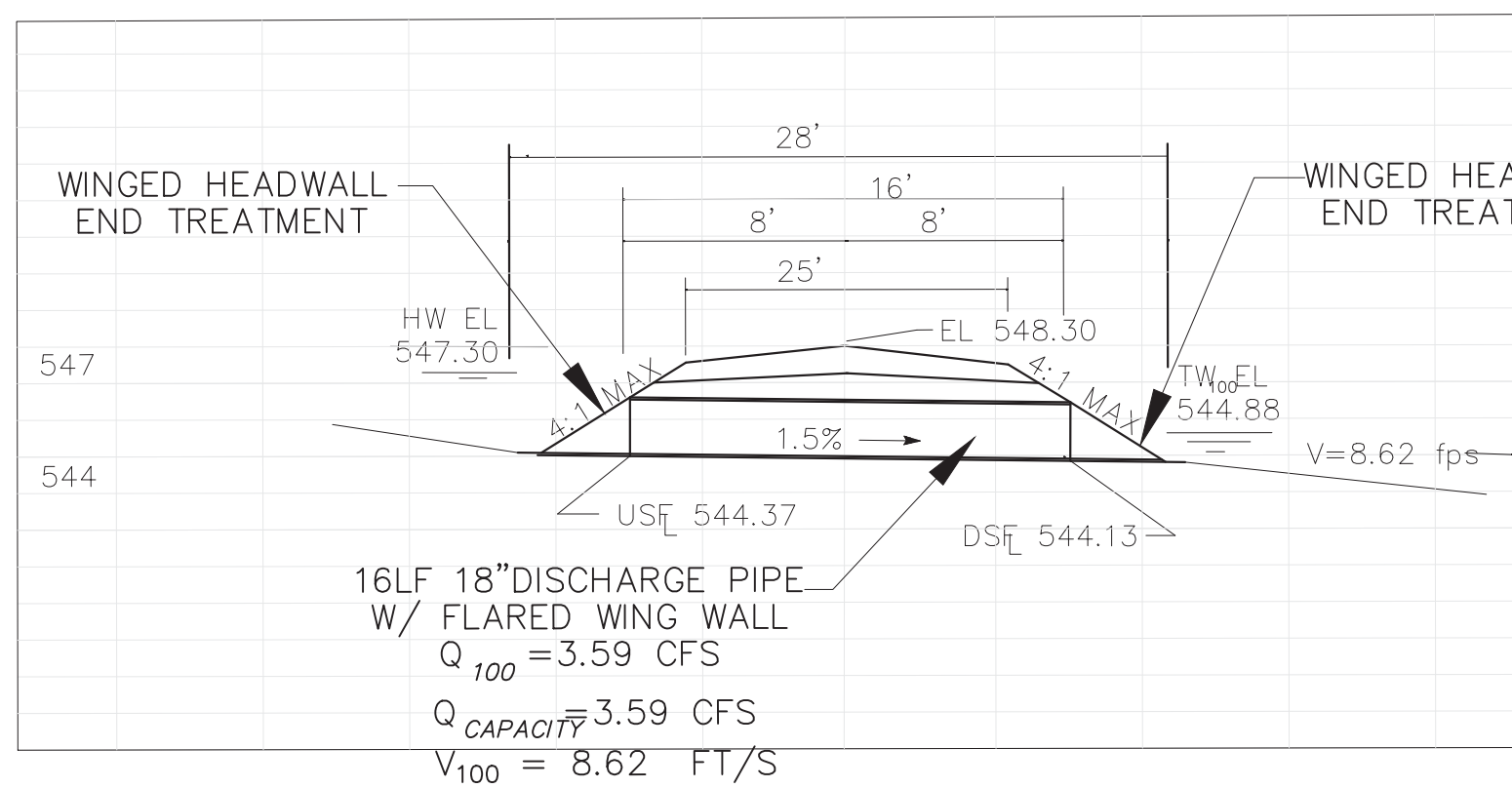
FLOW DISSIPATORS  
N.T.S.

DEPTH: 9"  
Q (CFS) = 3.59  
AREA (SQ.FT.) = .38  
V (FT/S) = 8.62  
TOP WIDTH = 6"



SCALE: N.T.S.

18" DISCHARGE PIPE



PROPOSED CONCRETE FLUME  
SLOPE = 0.5%  
LF = 309

PART OF 1' CURB

545.94

DETENTION AREA 3  
EXTENT OF DETENTION 100YR  
ELEVATION = 547.30'  
FREEBOARD = 548.30'  
MAX VOLUME = 20,673.91 CF

9.50 TC  
8.50 TP

DETENTION POND  
SLOPE = 0.5%

END OF 1' CURB

546

548

545.26

545.08

START OF 1' CURB

DETENTION AREA 3  
N.T.S.

DETENTION AREA 3

Q<sub>100</sub> (SITE)=(3.26+2.35+2.74+.46)=8.81 CFS

Q<sub>100</sub> (DETAINED OUTFLOW)=3.59 CFS

| ELEV    | AREA<br>(sq. ft.) | CONIC<br>INC. VOL.<br>(cu. ft.) | CONIC<br>TOTAL VOL.<br>(cu. ft.) |
|---------|-------------------|---------------------------------|----------------------------------|
| 544.400 | 4.65              | N/A                             | 0.00                             |
| 544.500 | 96.13             | 4.06                            | 4.06                             |
| 544.600 | 238.51            | 16.20                           | 20.27                            |
| 544.700 | 420.42            | 32.52                           | 52.79                            |
| 544.800 | 686.03            | 54.78                           | 107.57                           |
| 544.900 | 996.88            | 83.66                           | 191.23                           |
| 545.000 | 1,376.81          | 118.17                          | 309.41                           |
| 546.000 | 4,264.10          | 403.96                          | 3256.42                          |
| 547.000 | 7,122.94          | 697.52                          | 8945.36                          |
| 547.100 | 7,415.33          | 726.88                          | 9672.24                          |
| 547.200 | 7,711.73          | 756.30                          | 10428.55                         |
| 547.300 | 8,078.27          | 785.72                          | 11218.02                         |
| 548.000 | 10,004.65         | 6317.02                         | 17535.03                         |
| 548.100 | 10,307.51         | 1015.57                         | 18550.61                         |
| 548.200 | 10,611.68         | 1045.92                         | 19596.53                         |
| 548.300 | 10,955.44         | 542.99                          | 20673.91                         |

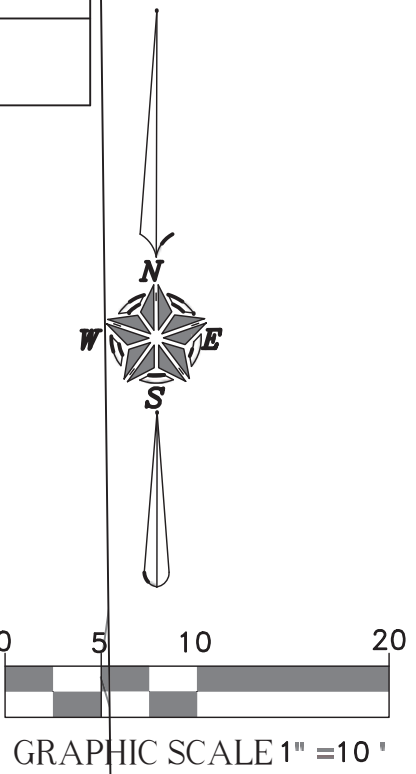
| MIN | I   | Q                          |
|-----|-----|----------------------------|
| 10  | 9.8 | (0.90)(9.8)(1.00)=8.82 CFS |
| 15  | 9.0 | (0.90)(9.0)(1.00)=8.10 CFS |
| 20  | 8.3 | (0.90)(8.3)(1.00)=7.47 CFS |
| 30  | 6.9 | (0.90)(6.9)(1.00)=6.20 CFS |
| 40  | 5.8 | (0.90)(5.8)(1.00)=5.22 CFS |
| 50  | 5.0 | (0.90)(5.0)(1.00)=4.50 CFS |
| 60  | 4.5 | (0.90)(4.5)(1.00)=4.05 CFS |
| 70  | 4.0 | (0.90)(4.0)(1.00)=3.60 CFS |
| 80  | 3.7 | (0.90)(3.7)(1.00)=3.33 CFS |
| 90  | 3.5 | (0.90)(3.5)(1.00)=3.15 CFS |
| 100 | 3.4 | (0.90)(3.4)(1.00)=3.06 CFS |
| 110 | 3.2 | (0.90)(3.2)(1.00)=2.88 CFS |
| 120 | 3.1 | (0.90)(3.1)(1.00)=2.79 CFS |

|                                | Q <sub>5</sub> | Q <sub>10</sub> | Q <sub>25</sub> | Q <sub>50</sub> | Q <sub>100</sub> |
|--------------------------------|----------------|-----------------|-----------------|-----------------|------------------|
| Q <sub>EXISTING</sub> (CFS)    | 3.36           | 4.05            | 4.53            | 5.15            | 5.70             |
| Q <sub>NOTDETAINED</sub> (CFS) | 1.32           | 1.53            | 1.79            | 1.94            | 2.11             |
| Q <sub>ALLOWABLE</sub> (CFS)   | 2.04           | 2.52            | 2.74            | 3.21            | 3.59             |
| WATER HEIGHT (FT)              | 545.66         | 545.99          | 546.16          | 546.58          | 547.30           |
| STAGE STORAGE OF POND(CF)      | 2,255.76       | 3,228.93        | 4,168.33        | 6,556.85        | 11,218.02        |

| MIN | INFLOW (IN)                           | OUTFLOW (OUT)                                    | STORAGE VOLUME (IN-OUT = SV) |
|-----|---------------------------------------|--------------------------------------------------|------------------------------|
| 10  | (10)(8.82 cfs)(60 sec/min)=5,292 cf   | (0.50)(20 min)(3.59 cfs)(60 sec/min)= 2,154 cf   | 3,138 cf                     |
| 15  | (15)(8.10 cfs)(60 sec/min)=7,290 cf   | (0.50)(25 min)(3.59 cfs)(60 sec/min)= 2,692.5 cf | 4,598 cf                     |
| 20  | (20)(7.47 cfs)(60 sec/min)=8,964 cf   | (0.50)(30 min)(3.59 cfs)(60 sec/min)= 3,231 cf   | 5,733 cf                     |
| 30  | (30)(6.21 cfs)(60 sec/min)=11,178 cf  | (0.50)(40 min)(3.59 cfs)(60 sec/min)= 4,308 cf   | 6,870 cf                     |
| 40  | (40)(5.22 cfs)(60 sec/min)=12,528 cf  | (0.50)(50 min)(3.59 cfs)(60 sec/min)= 5,385 cf   | 7,143 cf                     |
| 50  | (50)(4.50 cfs)(60 sec/min)=13,500 cf  | (0.50)(60 min)(3.59 cfs)(60 sec/min)= 6,462 cf   | 7,038 cf                     |
| 60  | (60)(4.05 cfs)(60 sec/min)=14,580 cf  | (0.50)(70 min)(3.59 cfs)(60 sec/min)= 7,539 cf   | 7,041 cf                     |
| 70  | (70)(3.60 cfs)(60 sec/min)=15,120 cf  | (0.50)(80 min)(3.59 cfs)(60 sec/min)= 8,616 cf   | 6,504 cf                     |
| 80  | (80)(3.33 cfs)(60 sec/min)=15,984 cf  | (0.50)(90 min)(3.59 cfs)(60 sec/min)= 9,693 cf   | 6,291 cf                     |
| 90  | (90)(3.15 cfs)(60 sec/min)=17,010 cf  | (0.50)(100 min)(3.59 cfs)(60 sec/min)= 10,770 cf | 6,240 cf                     |
| 100 | (100)(3.06 cfs)(60 sec/min)=18,360 cf | (0.50)(110 min)(3.59 cfs)(60 sec/min)= 11,847 cf | 6,513 cf                     |
| 110 | (110)(2.88 cfs)(60 sec/min)=19,008 cf | (0.50)(120 min)(3.59 cfs)(60 sec/min)= 12,924 cf | 6,084 cf                     |
| 120 | (120)(2.79 cfs)(60 sec/min)=20,088 cf | (0.50)(130 min)(3.59 cfs)(60 sec/min)= 14,001 cf | 6,087 cf                     |

THE MAXIMUM VOLUME REQUIRED IS 7,143 CF AT THE 100-MIN STORM DURATION.

| REV. NO. | DATE      | DESCRIPTION            | BY: |
|----------|-----------|------------------------|-----|
| 1        | 8/20/2025 | RETAINING WALL REMOVED | EC  |



RECORD DRAWINGS

THE SIGNED AND SEALED CONSTRUCTION DOCUMENT HAS BEEN REVISED TO REFLECT CONSTRUCTION RECORDS MAINTAINED AND PROVIDED BY THE CONTRACTOR FOR THIS PROJECT. THE INFORMATION SHOWN ON THIS RECORD DRAWING, WHICH WAS WITH THE DESIGN ENGINEER, CANNOT BE VERIFIED FOR ACCURACY OR COMPLETENESS. CORNERSTONE SHALL ASSUME NO LIABILITY FOR ANY CHANGES MADE DURING CONSTRUCTION THAT WERE NOT SPECIFICALLY APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. THE SEALED CONSTRUCTION DRAWINGS ARE ON FILE AT THE OFFICES OF CORNERSTONE.

ATTESTED BY: MITCH LENAMOND, P.E. #92714

SIGNATURE: *[Signature]*

ENGINEER OF RECORD: MITCH LENAMOND, P.E. #92714  
CONTRACTOR:

DATE REVISED: 10/24/2025

EXTENT OF DETENTION AREA 3  
WSEL = 547.30'

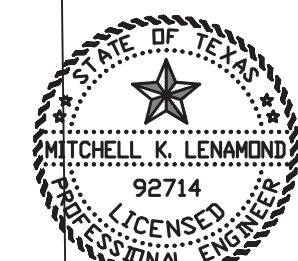
INSTALL 8" ROCK RIPRAP  
GROUTED IN PLACE  
DOWNSLOPE SIDE OF  
EMERGENCY SPILLWAY

FLARED WING 45° SKEW

EMERGENCY OUTFALL  
SECTION  
16 LF 18" DISCHARGE PIPE

DEPTH OF FLOW @ PIPE = 0.917'  
EXIT VELOCITY @ PIPE = 4.88 FT/SEC

FLOW DISSIPATORS  
SEE DETAIL



THE SEAL APPEARING ON THIS DOCUMENT WAS  
AUTHORIZED BY MITCHELL K. LENAMOND, P.E. #92714 ON  
8/20/2025

9/20/2023



ERIC L. DAVIS ENGINEERING, INC.

F-3987

401 Pinson Rd.

Forney, Texas 75126

972/564-0592 Fax 972/564-6523

E-Mail eric@ericdavisengineering.com

DETENTION POND LAYOUT

ENGINEER FOR:

M & J RANCH  
HOLDINGS LLC

BUILDER: M&J RANCH TRAILS HOLDING, LLC

PLAN: PAYING PLAN

ELD JOB NO.:

DRAWN BY: GT

FIRM REGISTRATION #: 3987

ADDITION: RAINBOW ACRES

ADDRESS: 365 RANCH TRAIL

LOT: 18A BLOCK: A

CITY: ROCKWALL, TEXAS

SCALE: 1"=20'

SHEET 14



"WATERFALL" DETENTION ANALYSIS  
 WATERFALL DETENTION DESIGN CONSISTS OF PRELIMINARY  
 DETENTION AREAS DRAINING INTO PRIMARY DETENTION AREA.

| MIN | I   | Q                          |
|-----|-----|----------------------------|
| 10  | 9.8 | (0.90)(9.8)(1.00)=8.82 CFS |
| 15  | 9.0 | (0.90)(9.0)(1.00)=8.10 CFS |
| 20  | 8.3 | (0.90)(8.3)(1.00)=7.47 CFS |
| 30  | 6.9 | (0.90)(6.9)(1.00)=6.20 CFS |
| 40  | 5.8 | (0.90)(5.8)(1.00)=5.22 CFS |
| 50  | 5.0 | (0.90)(5.0)(1.00)=4.50 CFS |
| 60  | 4.5 | (0.90)(4.5)(1.00)=4.05 CFS |
| 70  | 4.0 | (0.90)(4.0)(1.00)=3.60 CFS |
| 80  | 3.7 | (0.90)(3.7)(1.00)=3.33 CFS |
| 90  | 3.5 | (0.90)(3.5)(1.00)=3.15 CFS |
| 100 | 3.4 | (0.90)(3.4)(1.00)=3.06 CFS |
| 110 | 3.2 | (0.90)(3.2)(1.00)=2.88 CFS |
| 120 | 3.1 | (0.90)(3.1)(1.00)=2.79 CFS |

|                                | Q <sub>5</sub> | Q <sub>10</sub> | Q <sub>25</sub> | Q <sub>50</sub> | Q <sub>100</sub> |
|--------------------------------|----------------|-----------------|-----------------|-----------------|------------------|
| Q <sub>EXISTING</sub> (CFS)    | 3.55           | 4.18            | 4.62            | 5.19            | 5.70             |
| Q <sub>NOTDETAINED</sub> (CFS) | 1.78           | 2.00            | 2.25            | 2.41            | 2.11             |
| Q <sub>ALLOWABLE</sub> (CFS)   | 1.77           | 2.18            | 2.37            | 2.78            | 3.59             |
| WATER HEIGHT (FT)              | 545.66         | 545.99          | 546.16          | 546.58          | 547.25           |
| STAGE STORAGE OF POND(CF)      | 2,010.26       | 3,218.02        | 3,982.13        | 6,213.52        | 8,945.36         |

| MIN | INFLOW (IN)                           | OUTFLOW (OUT)                                    | STORAGE VOLUME (IN-OUT = SV) |
|-----|---------------------------------------|--------------------------------------------------|------------------------------|
| 10  | (10)(8.82 cfs)(60 sec/min)=5,292 cf   | (0.50)(20 min)(3.59 cfs)(60 sec/min)= 2,154 cf   | 3,138 cf                     |
| 15  | (15)(8.10 cfs)(60 sec/min)=7,290 cf   | (0.50)(25 min)(3.59 cfs)(60 sec/min)= 2,692.5 cf | 4,598 cf                     |
| 20  | (20)(7.47 cfs)(60 sec/min)=8,964 cf   | (0.50)(30 min)(3.59 cfs)(60 sec/min)= 3,231 cf   | 5,733 cf                     |
| 30  | (30)(6.21 cfs)(60 sec/min)=11,178 cf  | (0.50)(40 min)(3.59 cfs)(60 sec/min)= 4,308 cf   | 6,870 cf                     |
| 40  | (40)(5.22 cfs)(60 sec/min)=12,528 cf  | (0.50)(50 min)(3.59 cfs)(60 sec/min)= 5,385 cf   | 7,143 cf                     |
| 50  | (50)(4.50 cfs)(60 sec/min)=13,500 cf  | (0.50)(60 min)(3.59 cfs)(60 sec/min)= 6,462 cf   | 7,038 cf                     |
| 60  | (60)(4.05 cfs)(60 sec/min)=14,580 cf  | (0.50)(70 min)(3.59 cfs)(60 sec/min)= 7,539 cf   | 7,041 cf                     |
| 70  | (70)(3.60 cfs)(60 sec/min)=15,120 cf  | (0.50)(80 min)(3.59 cfs)(60 sec/min)= 8,616 cf   | 6,504 cf                     |
| 80  | (80)(3.33 cfs)(60 sec/min)=15,984 cf  | (0.50)(90 min)(3.59 cfs)(60 sec/min)= 9,693 cf   | 6,291 cf                     |
| 90  | (90)(3.15 cfs)(60 sec/min)=17,010 cf  | (0.50)(100 min)(3.59 cfs)(60 sec/min)= 10,770 cf | 6,240 cf                     |
| 100 | (100)(3.06 cfs)(60 sec/min)=18,360 cf | (0.50)(110 min)(3.59 cfs)(60 sec/min)= 11,847 cf | 6,513 cf                     |
| 110 | (110)(2.88 cfs)(60 sec/min)=19,008 cf | (0.50)(120 min)(3.59 cfs)(60 sec/min)= 12,924 cf | 6,084 cf                     |
| 120 | (120)(2.79 cfs)(60 sec/min)=20,088 cf | (0.50)(130 min)(3.59 cfs)(60 sec/min)= 14,001 cf | 6,087 cf                     |

THE MAXIMUM VOLUME REQUIRED IS 7,143 CF AT THE 100-MIN STORM DURATION.

DETENTION VOLUME REQUIREMENTS BASED ON MOST  
 CONSERVATIVE APPROACH

REQUIRED DETENTION VOLUME CALCULATED FROM THE CONSERVATIVE  
 METHOD = 10,879.77 CF

REQUIRED DETENTION VOLUME CALCULATED FROM THE ALTERNATIVE  
 METHOD = 7,143 CF

SINGLE DETENTION VOLUME DESIGN  
 DETENTION REQUIREMENTS MODELED AS A SINGLE DETENTION POND

| PRESENT CONDITIONS |      |
|--------------------|------|
| Q = CIA            |      |
| A =                | 1.96 |
| C =                | 0.35 |
| T <sub>c</sub> =   | 20   |
| I <sub>100</sub> = | 8.3  |
| Q <sub>100</sub> = | 5.69 |

| FUTURE CONDITIONS (DEVELOPED) |       |  | OFFSITE CONDITIONS (UNDEVELOPED) |      |  |                    |      | BYPASS | ALLOWABLE RELEASE FROM POND |
|-------------------------------|-------|--|----------------------------------|------|--|--------------------|------|--------|-----------------------------|
| A =                           | 1.80  |  | A =                              | 0.16 |  | A =                | 0.25 |        | —                           |
| A <sub>adj</sub> =            | 1.55  |  |                                  |      |  |                    |      |        |                             |
| C =                           | 0.9   |  | C =                              | 0.35 |  | C =                | 0.90 |        |                             |
| T <sub>c</sub> =              | 10    |  | T <sub>c</sub> =                 | 20   |  | T <sub>c</sub> =   | 10   |        |                             |
| I <sub>100</sub> =            | 9.8   |  | I <sub>100</sub> =               | 8.3  |  | I <sub>100</sub> = | 9.8  |        |                             |
| Q <sub>100</sub> =            | 15.88 |  | Q <sub>100</sub> =               | 0.46 |  | Q <sub>100</sub> = | 2.21 |        | 3.02                        |

| FLOW FOR STORM DURATION (DEVELOPED) |     |     |       | FLOW FOR STORM DURATIONS (OFFSITE) |     |      |        |
|-------------------------------------|-----|-----|-------|------------------------------------|-----|------|--------|
| MIN                                 | I   | C   | Q     | MIN                                | I   | C    | Q      |
| 10                                  | 9.8 | 0.9 | 13.67 | 10                                 | 9.8 | 0.35 | 0.5488 |
| 15                                  | 9.0 | 0.9 | 12.56 | 15                                 | 9   | 0.35 | 0.504  |
| 20                                  | 8.3 | 0.9 | 11.58 | 20                                 | 8.3 | 0.35 | 0.4648 |
| 30                                  | 6.9 | 0.9 | 9.63  | 30                                 | 6.9 | 0.35 | 0.3864 |
| 40                                  | 5.8 | 0.9 | 8.09  | 40                                 | 5.8 | 0.35 | 0.3248 |
| 50                                  | 5.0 | 0.9 | 6.98  | 50                                 | 5   | 0.35 | 0.28   |
| 60                                  | 4.5 | 0.9 | 6.28  | 60                                 | 4.5 | 0.35 | 0.252  |
| 70                                  | 4.0 | 0.9 | 5.58  | 70                                 | 4   | 0.35 | 0.224  |
| 80                                  | 3.7 | 0.9 | 5.16  | 80                                 | 3.7 | 0.35 | 0.2072 |
| 90                                  | 3.5 | 0.9 | 4.88  | 90                                 | 3.5 | 0.35 | 0.196  |
| 100                                 | 3.4 | 0.9 | 4.74  | 100                                | 3.4 | 0.35 | 0.1904 |
| 110                                 | 3.2 | 0.9 | 4.46  | 110                                | 3.2 | 0.35 | 0.1792 |

NET DETENTION VOLUME:

TOTAL DETENTION VOLUME – DET AREA 1 – DET AREA 2 =

18,087.36 CF – 3,648.42 CF – 3,558.81 CF = 10,879.77 CFS

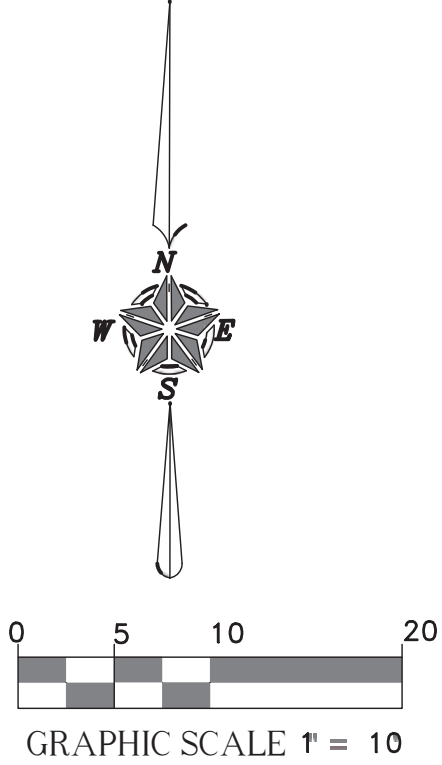
DETENTION VOLUME FOR DETENTION POND 3 = 11,218.02

| STORAGE CALCULATIONS |           |         |          |
|----------------------|-----------|---------|----------|
|                      |           |         |          |
| 10 MIN               |           |         |          |
| INFLOW               | 8531.88   | STORAGE | 6438.6   |
| OUTFLOW              | 2093.28   |         |          |
|                      |           |         |          |
| 15 MIN               |           |         |          |
| INFLOW               | 11753.1   | STORAGE | 9136.50  |
| OUTFLOW              | 2616.6    |         |          |
|                      |           |         |          |
| 20 MIN               |           |         |          |
| INFLOW               | 14451.96  | STORAGE | 11312.04 |
| OUTFLOW              | 3139.92   |         |          |
|                      |           |         |          |
| 30 MIN               |           |         |          |
| INFLOW               | 18021.42  | STORAGE | 13834.86 |
| OUTFLOW              | 4186.56   |         |          |
|                      |           |         |          |
| 40 MIN               |           |         |          |
| INFLOW               | 20197.92  | STORAGE | 14964.72 |
| OUTFLOW              | 5233.2    |         |          |
|                      |           |         |          |
| 50 MIN               |           |         |          |
| INFLOW               | 21765     | STORAGE | 15485.16 |
| OUTFLOW              | 6279.840  |         |          |
|                      |           |         |          |
| 60 MIN               |           |         |          |
| INFLOW               | 23506.2   | STORAGE | 16179.72 |
| OUTFLOW              | 7326.48   |         |          |
|                      |           |         |          |
| 70 MIN               |           |         |          |
| INFLOW               | 24376.800 | STORAGE | 16003.68 |
| OUTFLOW              | 8373.12   |         |          |
|                      |           |         |          |
| 80 MIN               |           |         |          |
| INFLOW               | 25769.76  | STORAGE | 16350    |
| OUTFLOW              | 9419.76   |         |          |
|                      |           |         |          |
| 90 MIN               |           |         |          |
| INFLOW               | 27423.9   | STORAGE | 16957.5  |
| OUTFLOW              | 10466.4   |         |          |
|                      |           |         |          |
| 100 MIN              |           |         |          |
| INFLOW               | 29600.4   | STORAGE | 18087.36 |
| OUTFLOW              | 11513.0   |         |          |
|                      |           |         |          |
| 110 MIN              |           |         |          |
| INFLOW               | 30645.12  | STORAGE | 18085.44 |
| OUTFLOW              | 12559.68  |         |          |

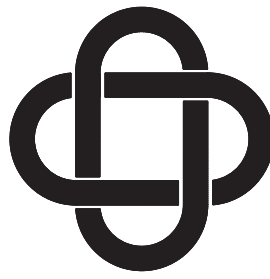
RECORD DRAWINGS

THE SIGNED AND SEALED CONSTRUCTION DOCUMENT HAS BEEN REVISED TO REFLECT CONSTRUCTION RECORDS MAINTAINED AND PROVIDED BY THE CONTRACTOR FOR THIS PROJECT. THE INFORMATION SHOWN ON THIS RECORD DRAWINGS, WHICH WAS/A WITH THE DESIGN ENGINEER, CANNOT BE VERIFIED FOR ACCURACY OR COMPLETENESS. CORNERSTONE SHALL ASSUME NO LIABILITY FOR ANY CHANGES MADE DURING CONSTRUCTION THAT WERE NOT SPECIFICALLY APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. THE SEALED CONSTRUCTION DRAWINGS ARE ON FILE AT THE OFFICES OF CORNERSTONE

ATTESTED BY: MITCH LENAMOND, P.E. #92714  
 SIGNATURE: *[Signature]*  
 ENGINEER OF RECORD: MITCH LENAMOND, P.E. #92714  
 CONTRACTOR:  
 DATE REVISED: 10/24/2025



9/20/23



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 401 Pinson Rd.  
 Forney, Texas 75126  
 972/564-0592 Fax 972/564-6523  
 E-Mail ericddavis@eidengineering.com

DETENTION POND LAYOUT

ENGINEERED FOR:

M & J RANCH  
 HOLDINGS LLC

|                                        |                           |
|----------------------------------------|---------------------------|
| BUILDER: M&J RANCH TRAILS HOLDING, LLC | PLAN: PAYING PLAN         |
| ADDITION: RAINBOW ACRES                | ELD JOB NO.:              |
| ADDRESS: 365 RANCH TRAIL               | DRAWN BY: GT              |
| LOT: 18A BLOCK: A                      | FIRM REGISTRATION #: 3987 |
| CITY: ROCKWALL, TEXAS                  |                           |

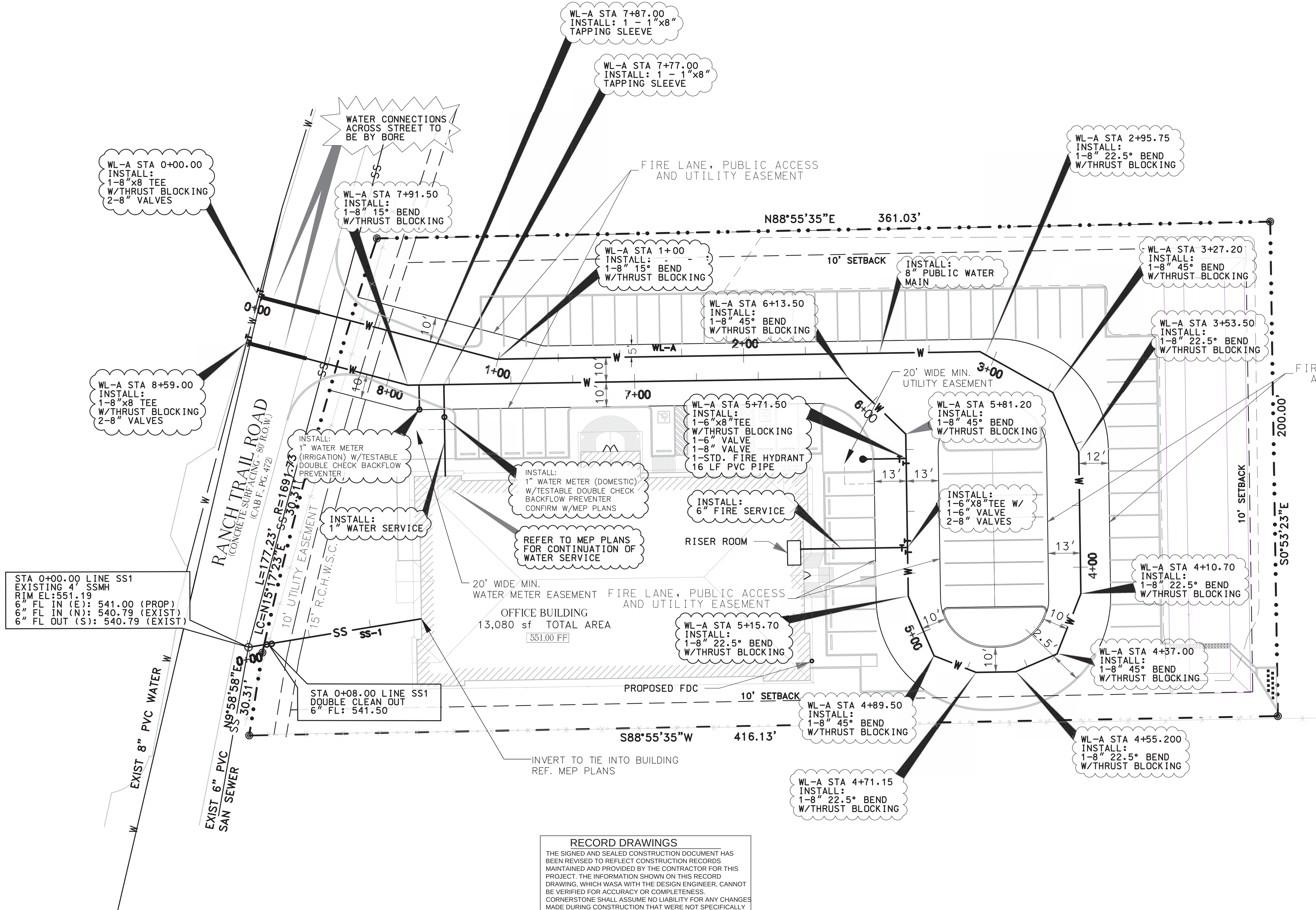
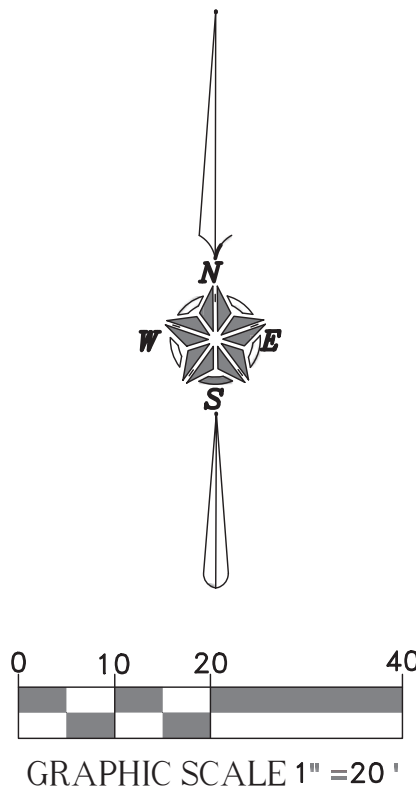
SCALE: 1"=20'

SHEET 15

MAX DETENTION VOLUME



| REVISIONS |           |                        |     |
|-----------|-----------|------------------------|-----|
| REV. NO.  | DATE      | DESCRIPTION            | BY: |
| 1         | 8/20/2025 | RETAINING WALL REMOVED | EC  |



STA 0+00.00 LINE SS1  
EXISTING 4" SSMH  
RIM EL: 551.19  
6" FL IN (E): 541.00 (PROP)  
6" FL IN (N): 540.79 (EXIST)  
6" FL OUT (S): 540.79 (EXIST)

STA 0+08.00 LINE SS1  
DOUBLE CLEAN OUT  
6" FL: 541.50

#### RECORD DRAWINGS

THE SIGNED AND SEALED CONSTRUCTION DOCUMENT HAS BEEN REVISED TO REFLECT CONSTRUCTION RECORDS MAINTAINED AND PROVIDED BY THE CONTRACTOR FOR THIS PROJECT. THE INFORMATION SHOWN ON THIS RECORD DRAWING, WHICH WAS A WITH THE DESIGN ENGINEER, CANNOT BE VERIFIED FOR ACCURACY OR COMPLETENESS. CORNERSTONE SHALL ASSUME NO LIABILITY FOR ANY CHANGES MADE DURING CONSTRUCTION THAT WERE NOT SPECIFICALLY APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. THE SEALED CONSTRUCTION DRAWINGS ARE ON FILE AT THE OFFICES OF CORNERSTONE

ATTESTED BY: MITCH LENAMOND, P.E. #92714

SIGNATURE: *Mitch Lenamond*

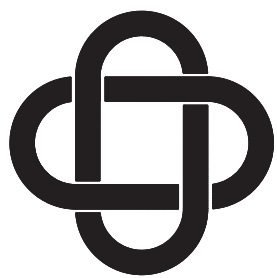
ENGINEER OF RECORD: MITCH LENAMOND, P.E. #92714  
CONTRACTOR:

DATE REVISED: 10/24/2025



THE SEAL APPEARING ON THIS DOCUMENT WAS  
AUTHORIZED BY MITCHELL K. LENAMOND, P.E. #92714 ON  
9/20/2023

9/20/2023



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E-Mail ericdavis@eldengineering.com

PROPOSED UTILITY PLAN  
ENGINEERED FOR:  
**M & J RANCH  
HOLDINGS LLC**

|                                        |                           |
|----------------------------------------|---------------------------|
| BUILDER: M&J RANCH TRAILS HOLDING, LLC | PLAN: UTILITY PLAN        |
| ADDITION: RAINBOW ACRES                | ELD JOB NO.:              |
| ADDRESS: 365 RANCH TRAIL               | DRAWN BY: GT              |
| LOT: 18A BLOCK: A                      | FIRM REGISTRATION #: 3987 |
| CITY: ROCKWALL, TEXAS                  |                           |

SCALE: 1"=20'

SHEET 16



RECORD DRAWINGS

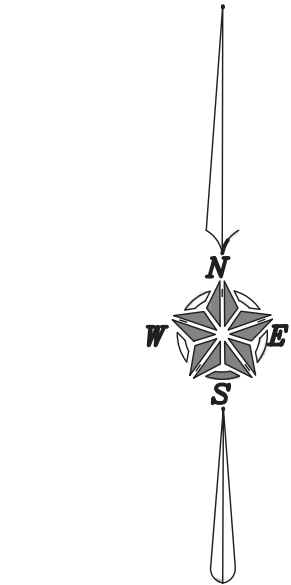
THE SIGNED AND SEALED CONSTRUCTION DOCUMENT HAS BEEN REVISED TO REFLECT CONSTRUCTION RECORDS. MAINTAINED AND PROVIDED BY THE CONTRACTOR FOR THIS PROJECT. THE INFORMATION SHOWN ON THIS RECORD DRAWING, WHICH WAS WITH THE DESIGN ENGINEER, CANNOT BE VERIFIED FOR ACCURACY OR COMPLETENESS. CORNERSTONE SHALL ASSUME NO LIABILITY FOR ANY CHANGES MADE DURING CONSTRUCTION THAT WERE NOT SPECIFICALLY APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. THE SEALED CONSTRUCTION DRAWINGS ARE ON FILE AT THE OFFICES OF CORNERSTONE

ATTESTED BY: MITCH LENAMOND, P.E. #92714

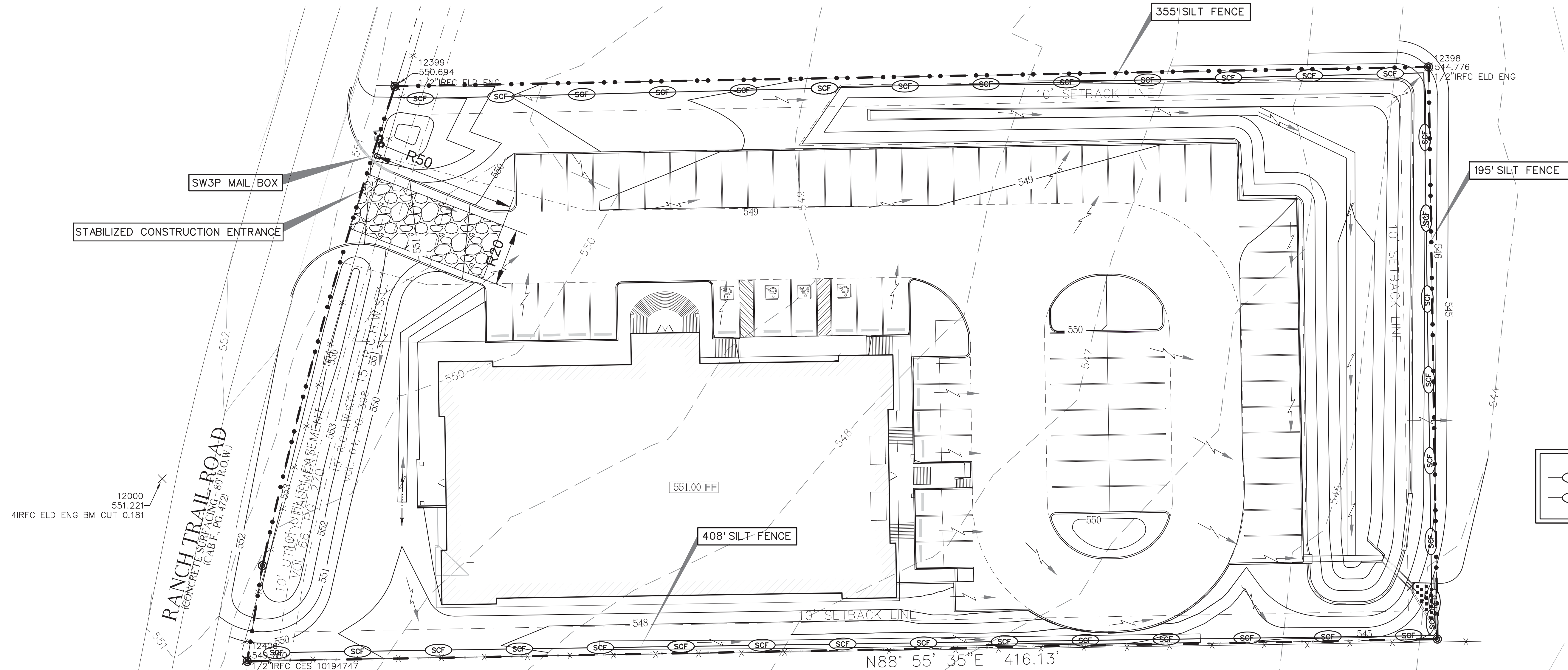
SIGNATURE: *[Signature]*

ENGINEER OF RECORD: MITCH LENAMOND, P.E. #92714  
CONTRACTOR:

DATE REVISED: 10/24/2025



0 10 20 40  
GRAPHIC SCALE 1" = 20'



I GENERAL:

Each Contractor shall have a designated area in which to stage his construction for this project. This site will be designated by the Contractor and shall be approved by the Owner. It will be the Contractor's responsibility to construct berms around its site so as to minimize the possibility of run-off water being exposed to pollutants and to detritus in any water that might potentially be exposed to pollutants. It shall also be the responsibility of each Contractor to install dikes around any diesel, gasoline or oil tanks, as well as any other hazardous chemicals stored on site, in order to contain any possible contamination to the smallest area should a leak or spill occur. If a leak or spill should occur, the Contractor responsible for such an accident is required to report it to the Owner immediately.

This shall also be the designated area for equipment maintenance and repair. All maintenance will take place inside this area and any repairs to equipment should be performed here, if possible. Should the equipment not be able to be moved to this location, special care will be taken to prevent pollutants (oil, diesel, hydraulic fluid, etc.) from entering, either directly or indirectly, into the storm sewer, runoff of waterways.

Solid waste receptacles for trash and other debris such as soft drink cans or bottles, wrapping paper, metal or plastic banding strips and all other waste products shall be provided by the Contractor and shall be maintained during its tenure and removed at the end of his portion of the work. Contractor shall police the Project and maintain the cleanest site possible. An adequate number and properly maintained sanitary facilities (such as Chem-Cans) shall be supplied by Contractor for, and is to be used by, its employees.

A. Storage of Material on Site

Materials shall be stored in the designated staging area whenever feasible to do so. When materials are to be stored outside this area, it should be done in such a way as to prevent as much exposure as possible. Sand and rock should be stored in a location that will prevent the flow of run-off storm water from coming into contact with it. Any time diesel, gasoline, oil or other hazardous materials are stored outside the staging area (even if overnight), a retention dike is to be immediately constructed.

B. Entering and Exiting Project

It is the responsibility of Contractor to make sure that all vehicles either owned or employed by him are free of soils which could be tracked onto any adjacent roadways. In the event that soils are tracked onto a roadway, clean up of this soils to be performed immediately, and in such a manner as not to contaminate offsite storm drainage facilities.

1. Equipment Wash Down Areas:

Equipment Wash Down areas are not a mandatory part of the Plan unless a Contractor wishes to wash his equipment or other vehicles on site. If a Contractor wishes to do so, he may elect to use the stabilized construction entrance as a Wash Down area, or he may build a similar structure inside the Project which will retain all water produced by the washing of equipment. It will not be acceptable to wash any equipment on adjacent roadways or property.

C. Paving:

Paving should be done in a manner as to ensure that the sediment controls are in place above and below where the construction is taking place and not to leave a waterway open so that the sediment laden water is allowed to leave the site without being filtered.

D. Dust Control:

During construction, water trucks will be used by each contractor to reduce dust as needed. After construction, the site will be re-vegetated to reduce dust.

II MAINTENANCE AND REPORTING PROCEDURES

A. Maintenance and Repair:

Inspections are to be performed by a qualified person provided by discharger, and are to be performed a minimum of once every fourteen (14) calendar days and within twenty-four hours of any storm event of greater than 0.5 inches. Please note that an inspection required after a "storm event" does not replace the required bi-monthly inspection and is to be in addition to monthly scheduled inspections. Written reports shall be given to owner and appropriate inspector.

When damage repair to the erosion or sediment controls are needed, the work shall be performed within five (5) days of written notice from the Owner. If requested repairs are not performed within such five day period, the Owner shall employ a contractor to make the required repairs and will deduct such amount from the Contractor that damaged the controls.

Maintenance of controls shall be performed within five (5) days of written notice from the Owner to the Contractor responsible for the maintenance of such control.

III RE-VEGETATION

A. At the completion of the paving and final grading the entire disturbed area shall be re-vegetated with seeds and rates approved by the Owner.

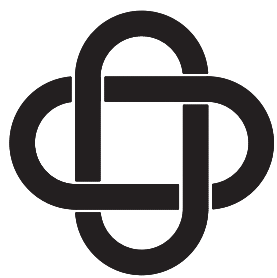
B. All silt fence shall remain in place until re-vegetation has been completed.

C. Prior to final paving, each Contractor shall be responsible for removing any mud or silt that collects on the existing pavement as a result of their operations. After the installation of the new paving and prior to acceptance by the appropriate authority, the paving Contractor shall be responsible for removing any mud or silt that collects on the existing and new pavement. After acceptance by the appropriate authority, the Owner shall be responsible for removal of the mud or silt that collects on the pavement.



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MITCHELL K. LENAMOND, P.E. 92714 ON 9/20/2023

9/20/2023



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E-Mail ericdavis@eldengineering.com

EROSION CONTROL PLAN

ENGINEERED FOR:

M & J RANCH  
HOLDINGS LLC

BUILDER: M&J RANCH TRAILS HOLDING, LLC

ADDITION: RAINBOW ACRES

ADDRESS: 365 RANCH TRAIL

LOT: 18A BLOCK: A

CITY: ROCKWALL, TEXAS

PLAN: EROSION CONTROL

ELD JOB NO.:

DRAWN BY: GT

FIRM REGISTRATION #: 3987

SCALE: 1"=20'

SHEET 19



SILT FENCE GENERAL NOTES:

1. POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WIRE BACKING, WHICH IN TURN IS ATTACHED TO THE FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
5. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN FINAL STABILIZATION IS ACHIEVED OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.
8. FILTER STONE SHALL BE WRAPPED IN FILTER FABRIC AND BURIED SIX (6") INCHES MINIMUM.

SILT FENCE



|                                  |           |
|----------------------------------|-----------|
| STANDARD SPECIFICATION REFERENCE | 202.5 *   |
| DATE                             | Mar. 2018 |
| STANDARD DRAWING NO.             | R-1020B   |

\*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. Public Works Construction Standards North Central Texas, Fifth Edition.

ROCK CHECK DAM GENERAL NOTES:

1. STONE SHALL BE WELL GRADED WITH SIZE RANGE FROM 1½ TO 3½ INCHES IN DIAMETER DEPENDING ON EXPECTED FLOWS.
2. THE CHECK DAM SHALL BE INSPECTED AS SPECIFIED IN THE SWPPP AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
3. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE CHECK DAM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
4. WHEN THE SITE HAS ACHIEVED FINAL STABILIZATION OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED, THE CHECK DAM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.
5. FILTER STONE SHALL BE WRAPPED IN APPROPRIATE SIZED WIRE MESH TO CONTAIN STONE AND BURIED SIX (6") INCHES MINIMUM.

ROCK CHECK DAM



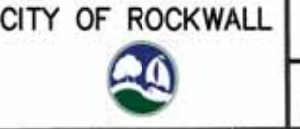
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|----------------------------------|-----------|
| STANDARD SPECIFICATION REFERENCE | 202.9 *   |
| DATE                             | Mar. 2018 |
| STANDARD DRAWING NO.             | R-1060B   |

\*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. Public Works Construction Standards North Central Texas, Fifth Edition.

STABILIZED CONSTRUCTION ENTRANCE GENERAL NOTES:

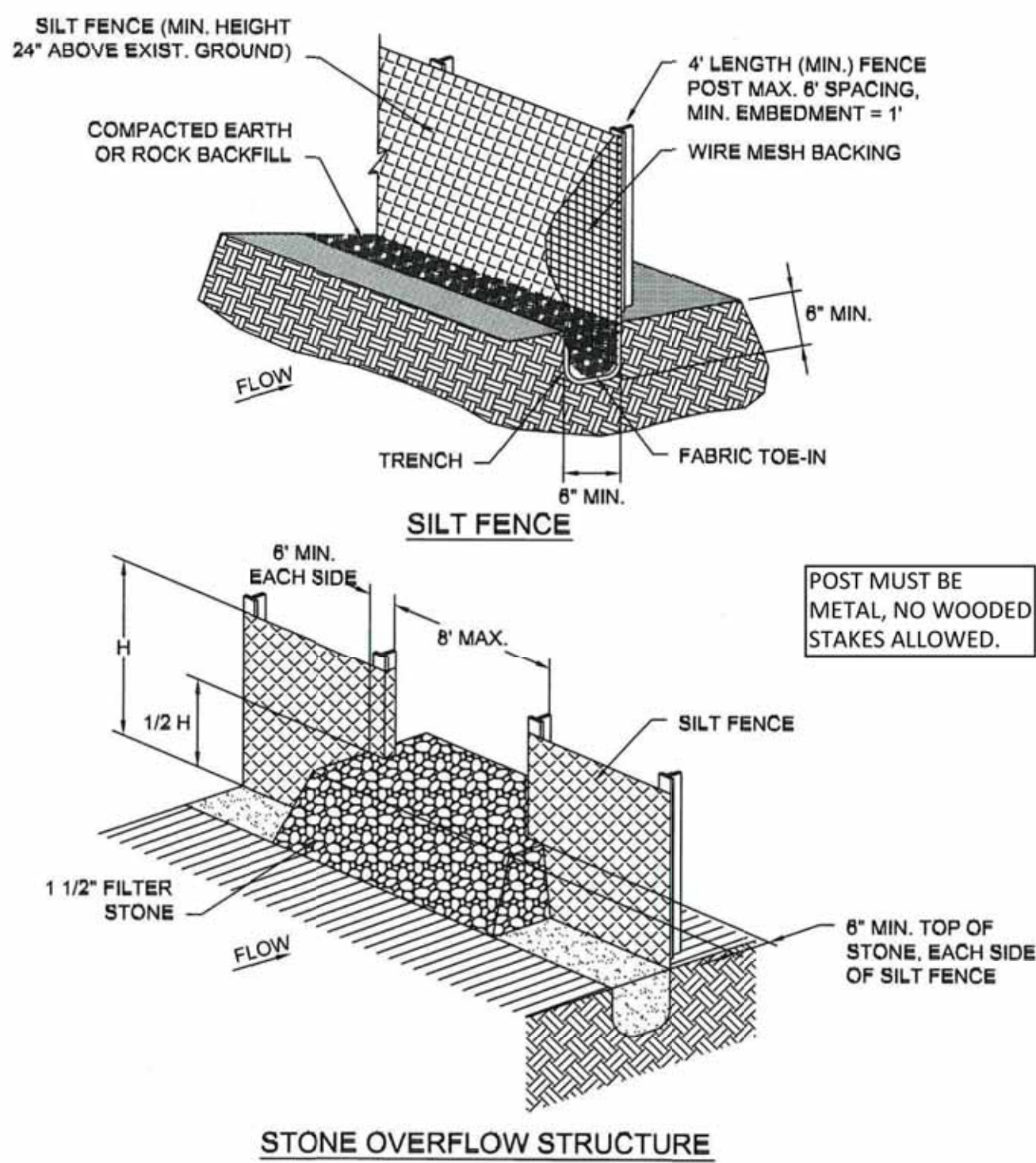
1. STONE SHALL BE 4 TO 6 INCH DIAMETER COARSE AGGREGATE.
2. MINIMUM LENGTH SHALL BE 50 FEET AND WIDTH SHALL BE 20 FEET.
3. THE THICKNESS SHALL NOT BE LESS THAN 12 INCHES.
4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.
7. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
8. PREVENT SHORTCUTTING OF THE FULL LENGTH OF THE CONSTRUCTION ENTRANCE BY INSTALLING BARRIERS AS NECESSARY.
9. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP.
10. NO CRUSHED OR RECYCLED CONCRETE ALLOWED.

STABILIZED CONSTRUCTION ENTRANCE



|                                  |           |
|----------------------------------|-----------|
| STANDARD SPECIFICATION REFERENCE | 202.11 *  |
| DATE                             | Mar. 2018 |
| STANDARD DRAWING NO.             | R-1070B   |

\*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. Public Works Construction Standards North Central Texas, Fifth Edition.

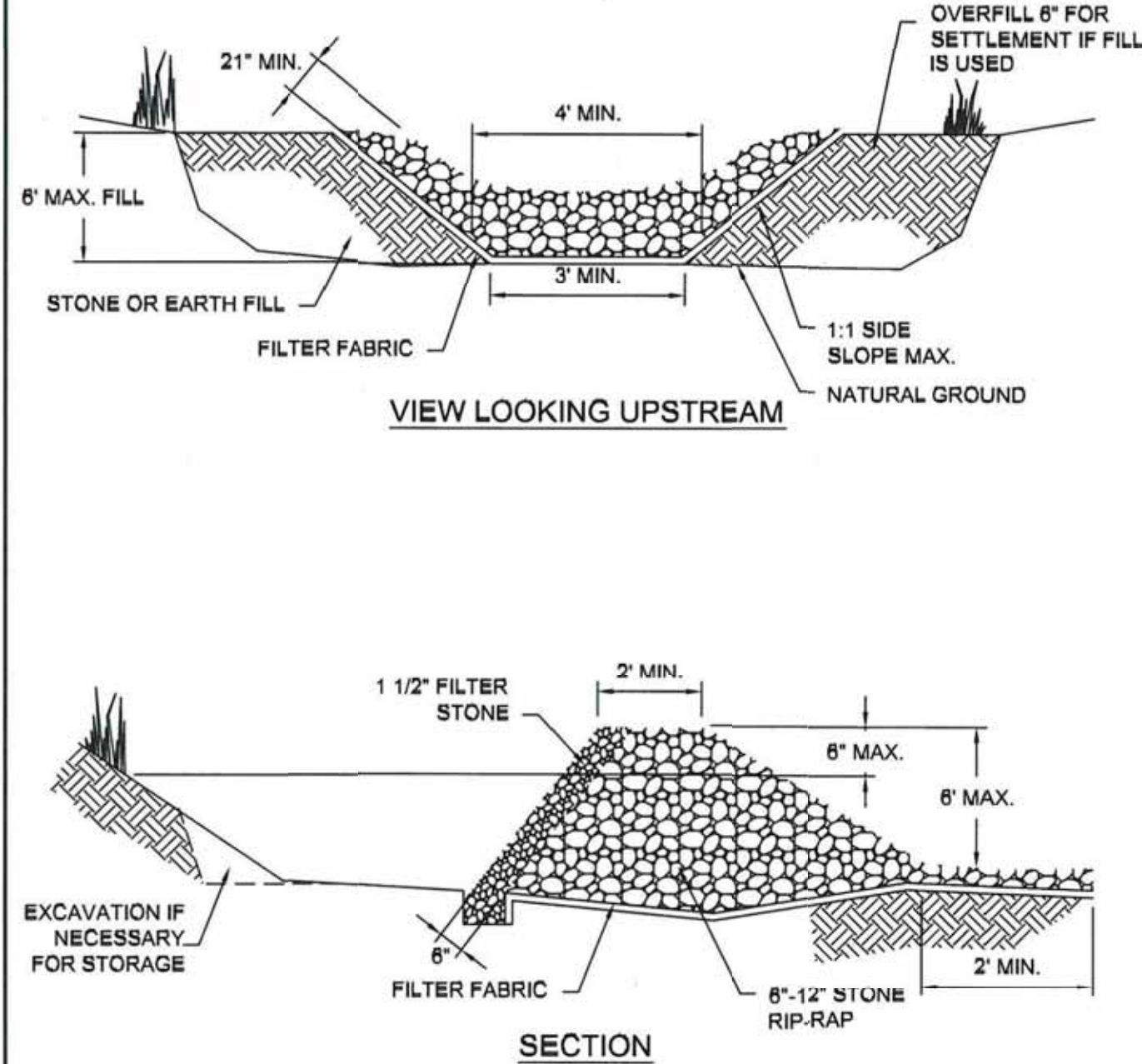


SILT FENCE



|                                  |           |
|----------------------------------|-----------|
| STANDARD SPECIFICATION REFERENCE | 202.5 *   |
| DATE                             | Mar. 2018 |
| STANDARD DRAWING NO.             | R-1020A   |

\*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. Public Works Construction Standards North Central Texas, Fifth Edition.

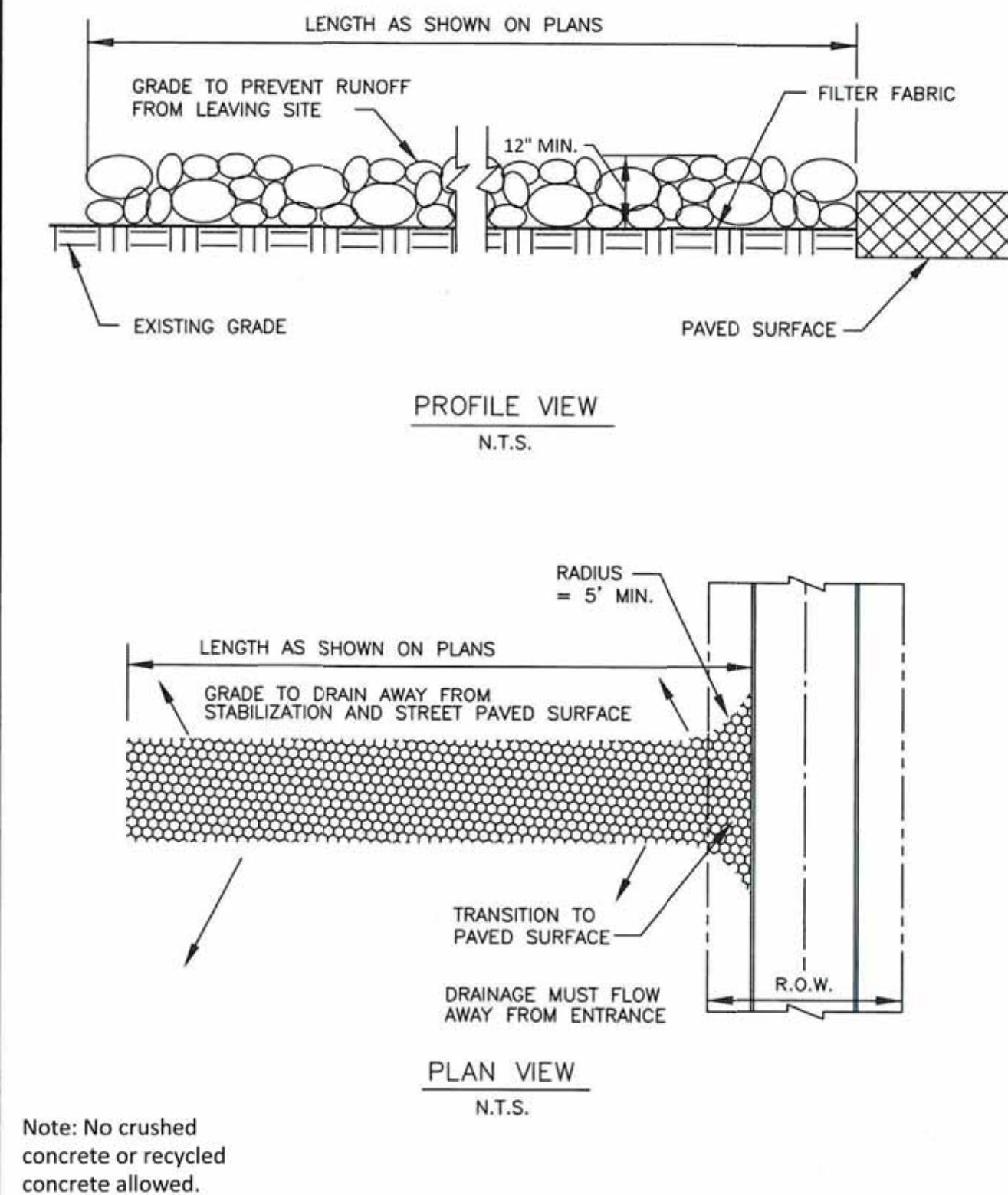


STONE OUTLET SEDIMENT TRAP

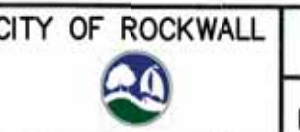


|                                  |           |
|----------------------------------|-----------|
| STANDARD SPECIFICATION REFERENCE | 202.12 *  |
| DATE                             | Mar. 2018 |
| STANDARD DRAWING NO.             | R-1090    |

\*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. Public Works Construction Standards North Central Texas, Fifth Edition.



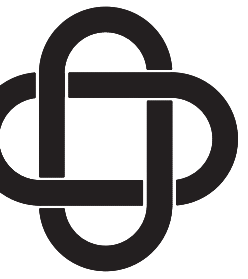
STABILIZED CONSTRUCTION ENTRANCE



|                                  |           |
|----------------------------------|-----------|
| STANDARD SPECIFICATION REFERENCE | 202.11 *  |
| DATE                             | Mar. 2018 |
| STANDARD DRAWING NO.             | R-1070A   |

\*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. Public Works Construction Standards North Central Texas, Fifth Edition.

9/20/2023



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E-Mail ericdavis@eldengineering.com

EROSION CONTROL DETAILS  
ENGINEERED FOR:  
M & J RANCH HOLDINGS LLC

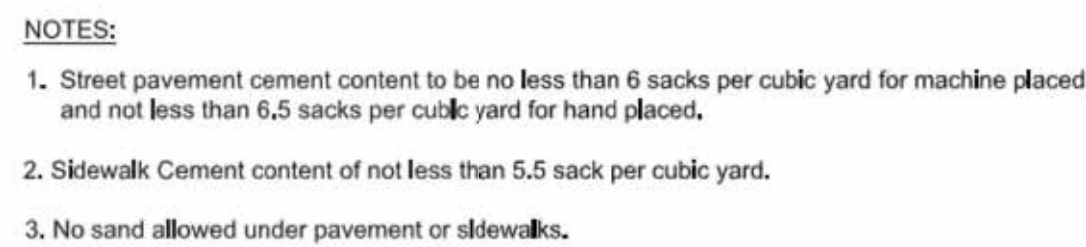
BUILDER: M&J RANCH TRAILS HOLDING, LLC  
PLAN: EROSION CONTROL DETAILS  
ELD JOB NO.:  
DRAWN BY: GT  
FIRM REGISTRATION #: 3987  
CITY: ROCKWALL, TEXAS

SCALE: 1"=20'

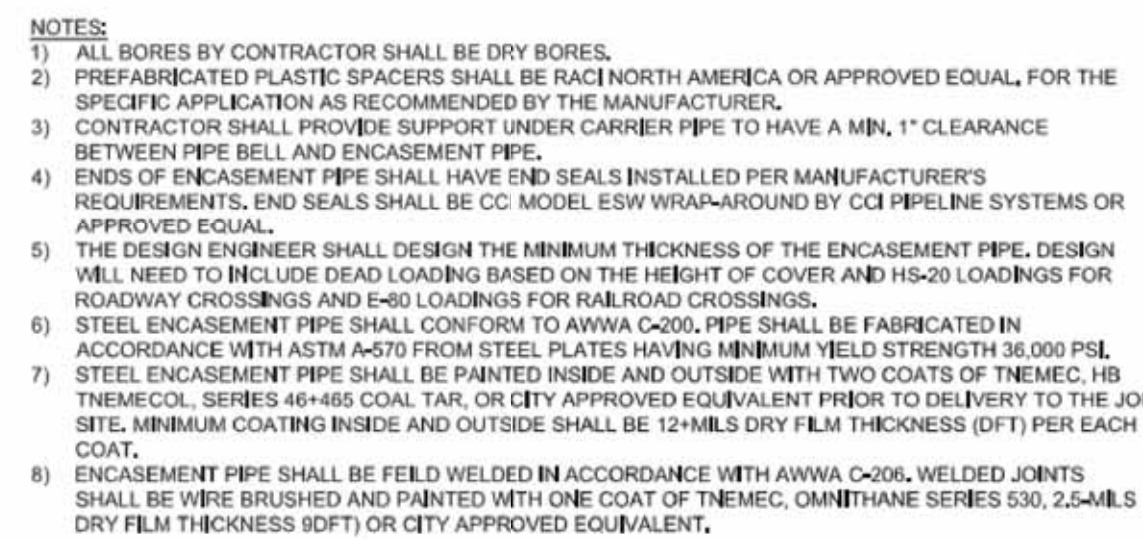
SHEET 20



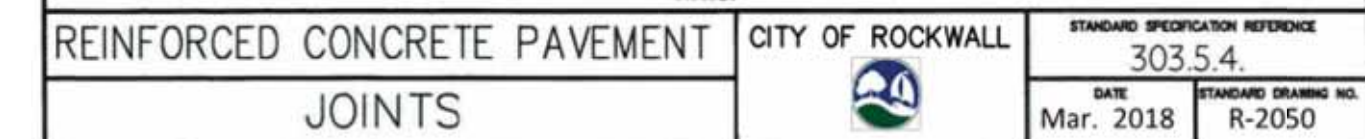
1. REINFORCED CONCRETE PAVEMENT:
  - A. ALL CURBS SHALL BE PLACED INTEGRAL WITH PAVEMENT UNLESS OTHERWISE APPROVED BY THE OWNER.
  - B. CURBS SHALL MEET THE SAME COMPRESSIVE STRENGTH AS SPECIFIED FOR THE PAVEMENT.
  - C. BAR LAPS SHALL BE 30 DIAMETERS.
  - D. REINFORCING BARS SHALL BE SUPPORTED BY CHAIRS OR OTHER DEVICES APPROVED BY THE OWNER.
2. SUBGRADE: (UNLESS OTHERWISE SPECIFIED BY OWNER)
  - A. SUBGRADE UNDER ALL PAVEMENTS SHALL BE STABILIZED TO A MINIMUM DEPTH OF SIX (6") INCHES WITH HYDRATED LIME CEMENT. LABORATORY TESTS WILL BE PERFORMED TO DETERMINE THE AMOUNT OF LIME OR CEMENT TO USE.



|                  |                                                                                                       |                                                 |
|------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| PAVEMENT SYSTEMS | CITY OF ROCKWALL<br> | STANDARD SPECIFICATION REFERENCE<br>302.303     |
| GENERAL NOTES    |                                                                                                       | DATE: Mar. 2018<br>STANDARD DRAWING NO.: R-2190 |



|                     |                                                                                       |          |             |
|---------------------|---------------------------------------------------------------------------------------|----------|-------------|
| UNDERGROUND CONDUIT |  | DATE     | DRAWING NO. |
| STEEL ENCASED BORE  |                                                                                       | OCT. '17 | R-3090      |



1. LONGITUDINAL BUTT CONSTRUCTION MAY BE UTILIZED IN PLACE OF LONGITUDINAL HINGED (KEYWAY) JOINT AT CONTRACTORS OPTION.
2. DEFORMED DOWEL BARS SHALL BE DRILLED INTO PAVEMENT HORIZONTALLY BY USE OF A MECHANICAL RIG.
3. DRILLING BY HAND IS NOT ACCEPTABLE; PUSHING DOWEL BARS INTO GREEN CONCRETE NOT ACCEPTABLE.

|                              |                                                                                                           |                 |                       |
|------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------|-----------------------|
| REINFORCED CONCRETE PAVEMENT | CITY OF ROCKWALL<br> |                 |                       |
| LONGITUDINAL BUTT JOINT      |                                                                                                           | DATE<br>DEC '22 | DRAWING NO.<br>R-2051 |

**ERIC L. DAVIS ENGINEERING, INC.**  
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CONSTRUCTION DETAILS  
ENGINEERED FOR:  
**M & J RANCH  
HOLDINGS LLC**

|                                        |                            |
|----------------------------------------|----------------------------|
| BUILDER: M&J RANCH TRAILS HOLDING, LLC | PLAN: CONSTRUCTION DETAILS |
| ADDITION: RAINBOW ACRES                | ELD JOB NO.:               |
| ADDRESS: 365 RANCH TRAIL               | DRAWN BY: GT               |
| LOT: 18A BLOCK: A                      | FIRM REGISTRATION #: 3987  |
| CITY: ROCKWALL, TEXAS                  |                            |

SCALE: 1"=20'

SHEET 24





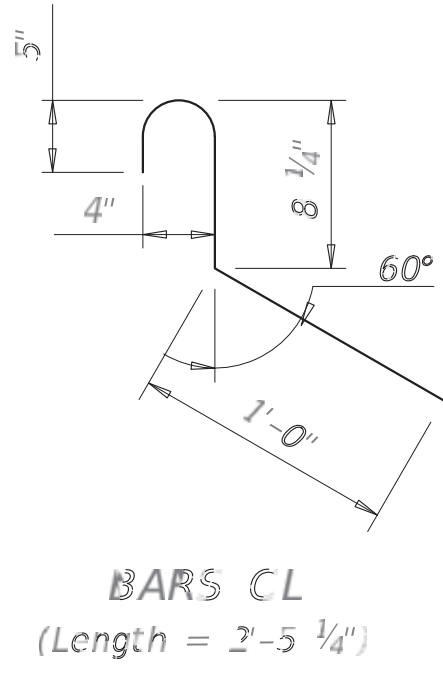


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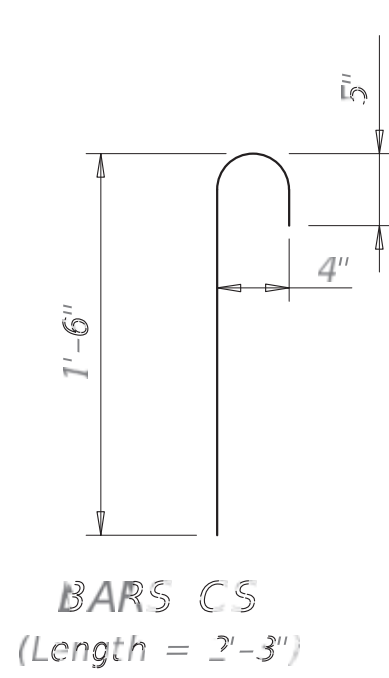
DATE: FILE:

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL ⑤

| Slope | Dia of Pipe (D) | Values for One Pipe |              |          |          |             |             | Values to be Added for Each Additional Pipe |             |             |  |
|-------|-----------------|---------------------|--------------|----------|----------|-------------|-------------|---------------------------------------------|-------------|-------------|--|
|       |                 | W                   | X            | Y        | L        | Reinf (Lbs) | Conc (CY) ① | X and W                                     | Reinf (Lbs) | Conc (CY) ① |  |
| 2:1   | 12"             | 7' - 7 3/4"         | 4' - 3"      | 2' - 10" | 5' - 8"  | 119         | 0.9         | 2' - 5 3/4"                                 | 26          | 0.3         |  |
|       | 15"             | 8' - 10 1/2"        | 4' - 7 1/4"  | 3' - 4"  | 6' - 8"  | 135         | 1.1         | 3' - 0 3/4"                                 | 32          | 0.4         |  |
|       | 18"             | 10' - 1 1/4"        | 4' - 11 1/2" | 3' - 10" | 7' - 8"  | 167         | 1.3         | 3' - 9 1/4"                                 | 48          | 0.5         |  |
|       | 21"             | 11' - 3 3/4"        | 5' - 3 3/4"  | 4' - 4"  | 8' - 8"  | 187         | 1.6         | 4' - 4 1/4"                                 | 54          | 0.6         |  |
|       | 24"             | 12' - 6 1/2"        | 5' - 8"      | 4' - 10" | 9' - 8"  | 214         | 1.8         | 5' - 0 3/4"                                 | 67          | 0.8         |  |
|       | 27"             | 13' - 9"            | 6' - 0 1/4"  | 5' - 4"  | 10' - 8" | 231         | 2.1         | 5' - 6 1/2"                                 | 73          | 0.9         |  |
|       | 30"             | 14' - 11 3/4"       | 6' - 4 1/2"  | 5' - 10" | 11' - 8" | 265         | 2.5         | 6' - 1 1/2"                                 | 86          | 1.1         |  |
|       | 33"             | 16' - 3"            | 6' - 9 1/2"  | 6' - 4"  | 12' - 8" | 292         | 2.8         | 6' - 7 1/4"                                 | 92          | 1.2         |  |
|       | 36"             | 17' - 6 1/4"        | 7' - 2 1/4"  | 6' - 10" | 13' - 8" | 324         | 3.2         | 7' - 2 1/4"                                 | 107         | 1.4         |  |
|       | 42"             | 20' - 1"            | 8' - 0 1/4"  | 7' - 10" | 15' - 8" | 391         | 4.0         | 8' - 3"                                     | 138         | 1.8         |  |
|       | 48"             | 23' - 6"            | 8' - 10 1/4" | 9' - 4"  | 18' - 8" | 478         | 5.4         | 9' - 3 3/4"                                 | 167         | 2.4         |  |
|       | 54"             | 26' - 0 3/4"        | 9' - 8"      | 10' - 4" | 20' - 8" | 561         | 6.4         | 10' - 7 1/4"                                | 198         | 3.0         |  |
|       | 60"             | 28' - 7 1/2"        | 10' - 6"     | 11' - 4" | 22' - 8" | 632         | 7.5         | 11' - 8"                                    | 243         | 3.6         |  |
|       | 66"             | 31' - 2 1/4"        | 11' - 3 3/4" | 12' - 4" | 24' - 8" | 724         | 8.8         | 12' - 4 1/2"                                | 269         | 4.0         |  |
| 3:1   | 12"             | 10' - 1 1/4"        | 4' - 3"      | 4' - 3"  | 8' - 6"  | 158         | 1.3         | 2' - 5 3/4"                                 | 28          | 0.3         |  |
|       | 15"             | 11' - 9 1/4"        | 4' - 7 1/4"  | 5' - 0"  | 10' - 0" | 188         | 1.6         | 3' - 0 3/4"                                 | 37          | 0.5         |  |
|       | 18"             | 13' - 5"            | 4' - 11 1/2" | 5' - 9"  | 11' - 6" | 229         | 2.0         | 3' - 9 1/4"                                 | 55          | 0.6         |  |
|       | 21"             | 15' - 0 3/4"        | 5' - 3 3/4"  | 6' - 6"  | 13' - 0" | 260         | 2.4         | 4' - 4 1/4"                                 | 62          | 0.8         |  |
|       | 24"             | 16' - 8 3/4"        | 5' - 8"      | 7' - 3"  | 14' - 6" | 297         | 2.8         | 5' - 0 3/4"                                 | 77          | 1.0         |  |
|       | 27"             | 18' - 4 1/2"        | 6' - 0 1/4"  | 8' - 0"  | 16' - 0" | 335         | 3.3         | 5' - 6 1/2"                                 | 88          | 1.2         |  |
|       | 30"             | 20' - 0 1/4"        | 6' - 4 1/2"  | 8' - 9"  | 17' - 6" | 383         | 3.9         | 6' - 1 1/2"                                 | 103         | 1.4         |  |
|       | 33"             | 21' - 8 3/4"        | 6' - 9 1/2"  | 9' - 6"  | 19' - 0" | 421         | 4.4         | 6' - 7 1/4"                                 | 111         | 1.6         |  |
|       | 36"             | 23' - 5 1/2"        | 7' - 2 1/4"  | 10' - 3" | 20' - 6" | 470         | 5.1         | 7' - 2 1/4"                                 | 126         | 1.9         |  |
|       | 42"             | 26' - 10 1/2"       | 8' - 0 1/4"  | 11' - 0" | 23' - 6" | 579         | 6.4         | 8' - 3"                                     | 168         | 2.4         |  |
|       | 48"             | 31' - 7 1/4"        | 8' - 10 1/4" | 14' - 9" | 28' - 0" | 722         | 8.7         | 9' - 3 3/4"                                 | 210         | 3.2         |  |
|       | 54"             | 35' - 0 1/4"        | 9' - 8"      | 15' - 6" | 31' - 0" | 842         | 10.5        | 10' - 7 1/4"                                | 249         | 4.0         |  |
|       | 60"             | 38' - 5 1/4"        | 10' - 6"     | 17' - 0" | 34' - 0" | 966         | 12.4        | 11' - 8"                                    | 306         | 4.8         |  |
|       | 66"             | 41' - 10 1/4"       | 11' - 3 3/4" | 18' - 6" | 37' - 0" | 1,106       | 14.5        | 12' - 4 1/2"                                | 338         | 5.5         |  |
| 4:1   | 12"             | 12' - 6 3/4"        | 4' - 3"      | 5' - 8"  | 11' - 4" | 207         | 1.7         | 2' - 5 3/4"                                 | 32          | 0.4         |  |
|       | 15"             | 14' - 7 3/4"        | 4' - 7 1/4"  | 6' - 8"  | 13' - 4" | 246         | 2.2         | 3' - 0 3/4"                                 | 43          | 0.6         |  |
|       | 18"             | 16' - 8 3/4"        | 4' - 11 1/2" | 7' - 8"  | 15' - 4" | 300         | 2.8         | 3' - 9 1/4"                                 | 61          | 0.8         |  |
|       | 21"             | 18' - 9 3/4"        | 5' - 3 3/4"  | 8' - 8"  | 17' - 4" | 349         | 3.4         | 4' - 4 1/4"                                 | 73          | 1.0         |  |
|       | 24"             | 20' - 10 3/4"       | 5' - 8"      | 9' - 8"  | 19' - 4" | 400         | 4.0         | 5' - 0 3/4"                                 | 90          | 1.3         |  |
|       | 27"             | 23' - 0"            | 6' - 0 1/4"  | 10' - 8" | 21' - 4" | 451         | 4.8         | 5' - 6 1/2"                                 | 103         | 1.5         |  |
|       | 30"             | 25' - 1"            | 6' - 4 1/2"  | 11' - 8" | 23' - 4" | 516         | 5.5         | 6' - 1 1/2"                                 | 120         | 1.8         |  |
|       | 33"             | 27' - 2 3/4"        | 6' - 9 1/2"  | 12' - 8" | 25' - 4" | 580         | 6.4         | 6' - 7 1/4"                                 | 134         | 2.0         |  |
|       | 36"             | 29' - 4 1/2"        | 7' - 2 1/4"  | 13' - 8" | 27' - 4" | 639         | 7.3         | 7' - 2 1/4"                                 | 152         | 2.4         |  |
|       | 42"             | 33' - 8"            | 8' - 0 1/4"  | 15' - 8" | 31' - 4" | 789         | 9.4         | 8' - 3"                                     | 198         | 3.0         |  |
| 6:1   | 12"             | 17' - 5 3/4"        | 4' - 3"      | 8' - 6"  | 17' - 0" | 299         | 2.9         | 2' - 5 3/4"                                 | 38          | 0.5         |  |
|       | 15"             | 20' - 5"            | 4' - 7 1/4"  | 10' - 0" | 20' - 0" | 371         | 3.7         | 3' - 0 3/4"                                 | 51          | 0.8         |  |
|       | 18"             | 23' - 4 1/2"        | 4' - 11 1/2" | 11' - 6" | 23' - 0" | 449         | 4.7         | 3' - 9 1/4"                                 | 73          | 1.0         |  |
|       | 21"             | 26' - 4"            | 5' - 3 3/4"  | 13' - 0" | 26' - 0" | 537         | 5.8         | 4' - 4 1/4"                                 | 89          | 1.3         |  |
|       | 24"             | 29' - 3 1/4"        | 5' - 8"      | 14' - 6" | 29' - 0" | 611         | 7.0         | 5' - 0 3/4"                                 | 110         | 1.7         |  |
|       | 27"             | 32' - 2 3/4"        | 6' - 0 1/4"  | 16' - 0" | 32' - 0" | 708         | 8.3         | 5' - 6 1/2"                                 | 129         | 2.0         |  |
|       | 30"             | 35' - 2 1/4"        | 6' - 4 1/2"  | 17' - 6" | 35' - 0" | 807         | 9.7         | 6' - 1 1/2"                                 | 150         | 2.4         |  |
|       | 33"             | 38' - 2 1/4"        | 6' - 9 1/2"  | 19' - 0" | 38' - 0" | 921         | 11.3        | 6' - 7 1/4"                                 | 170         | 2.8         |  |

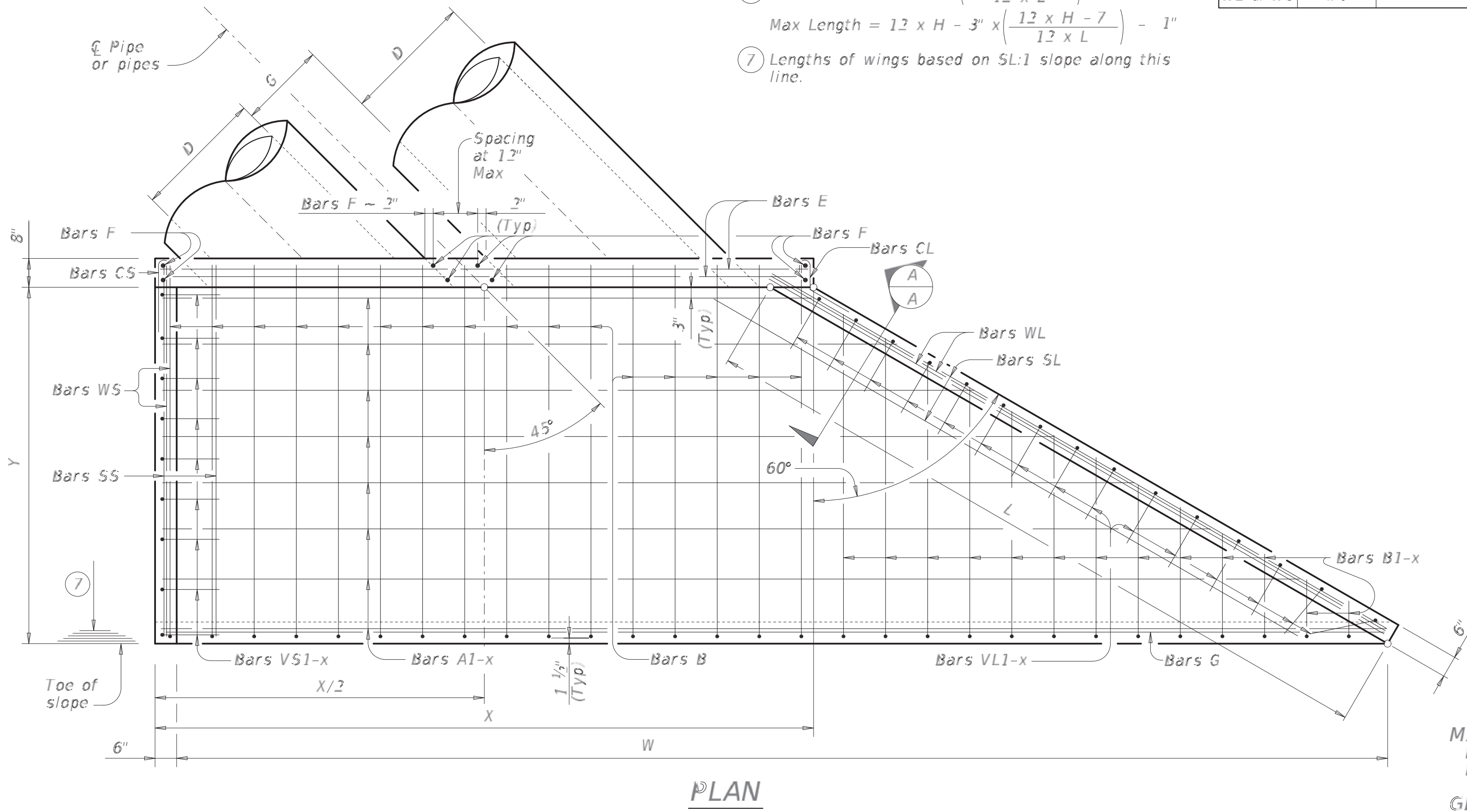
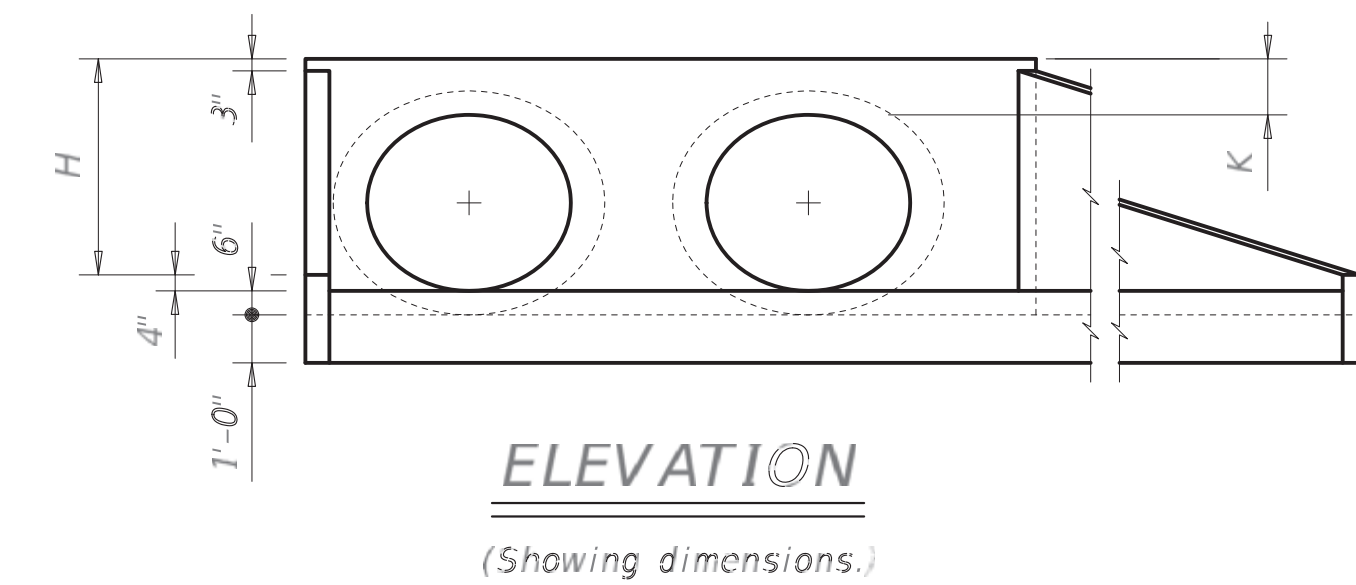


Bars VL and VS



Bars B and B1-x

Bars B and B1-x



TYPICAL WING ELEVATION

SECTION A-A

- Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
- For vehicle safety, construct curbs no more than 3' above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- Provide a 1'-0" footing as shown where required to maintain 4" minimum cover for pipes.
- Dimensions shown are usual and maximum.
- Quantities shown are for one structure end only (one headwall).
- Min Length = 6" + 3" x  $\left( \frac{12 \times H - 7}{12 \times L} \right)$   
Max Length = 12 x H - 3" x  $\left( \frac{12 \times H - 7}{12 \times L} \right)$  - 1"
- Lengths of wings based on SL:1 slope along this line.

| TABLE OF REINFORCING STEEL ⑤ |      |         |     |
|------------------------------|------|---------|-----|
| Bar                          | Size | Spa     | No. |
| A                            | #4   | 1' - 0" | ~   |
| B                            | #3   | 1' - 6" | ~   |
| CL & CS                      | #4   | 1' - 0" | ~   |
| D                            | #3   | 1' - 0" | ~   |
| E                            | #5   | ~       | 4   |
| F                            | #5   | ~       | ~   |
| G                            | #3   | ~       | 2   |
| SL & SS                      | #4   | ~       | 6   |
| VL & VS                      | #4   | 1' - 0" | ~   |
| WL & WS                      | #5   | ~       | 4   |

| TABLE OF CONSTANT DIMENSIONS |          |         |         |
|------------------------------|----------|---------|---------|
| Dia of Pipe (D)              | G        | K ④     | H       |
| 12"                          | 0' - 9"  | 1' - 0" | 2' - 0" |
| 15"                          | 0' - 11" | 1' - 0" | 2' - 3" |
| 18"                          | 1' - 2"  | 1' - 0" | 2' - 6" |
| 21"                          | 1' - 4"  | 1' - 0" | 2' - 9" |
| 24"                          | 1' - 7"  | 1' - 0" | 3' - 0" |
| 27"                          | 1' - 8"  | 1' - 0" | 3' - 3" |
| 30"                          | 1' - 10" | 1' - 0" | 3' - 6" |
| 33"                          | 1' - 11" | 1' - 0" | 3' - 9" |
| 36"                          | 2' - 1"  | 1' - 0" | 4' - 0" |
| 42"                          | 2' - 4"  | 1' - 0" | 4' - 6" |
| 48"                          | 2' - 7"  | 1' - 3" | 5' - 3" |
| 54"                          | 3' - 0"  | 1' - 3" | 5' - 9" |
| 60"                          | 3' - 3"  | 1' - 3" | 6' - 3" |
| 66"                          | 3' - 3"  | 1' - 3" | 6' - 9" |
| 72"                          | 3' - 4"  | 1' - 3" | 7' - 3" |

MATERIAL NOTES:  
Provide Grade 60 reinforcing steel.  
Provide Class C concrete (f'c = 3,600 psi).

GENERAL NOTE ⑤:  
Designed according to AASHTO LRFD Bridge Design Specifications.  
Do not mount bridge rails of any type directly to these culvert headwalls.  
This standard may not be used for wall heights, H, exceeding the values shown.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

Bridge Division Standard

CONCRETE HEADWALLS WITH FLARED WINGS FOR 45° SKEW PIPE CULVERTS

CH-FW-45

|                         |           |           |           |           |
|-------------------------|-----------|-----------|-----------|-----------|
| FILE: CD-CH-FW45-20.dgn | DN: TxDOT | CR: TxDOT | DW: TxDOT | CK: TxDOT |
| ©TxDOT February 2020    | CONT      | SECT      | .008      | HIGHWAY   |
| REVISIONS               | DIST      | COUNTY    | SHEET NO. |           |