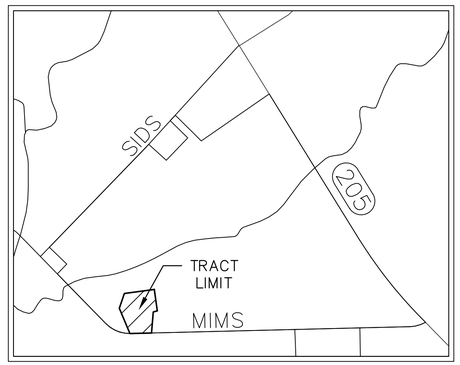
RAYBURN ELECTRIC COOPERATIVE

INDOOR SHOOTING RANGE
CIVIL SITE IMPROVEMENTS

MIMS RD
ROCKWALL COUNTY ROCKWALL, TEXAS 75032

INDOOR SHOOTING RANGE
ROCKWALL COUNTY, TEXAS

INDEX OF SHEETS



GENERAL NOTES

ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH CITY OF ROCKWALL STANDARDS OF DESIGN AND CONSTRUCTION AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION IN NORTH TEXAS, LATEST EDITION, BY NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, P.O. BOX COG, ARLINGTON, TEXAS 76005-5888 (817) 461-3300, A COPY OF THIS BOOK MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS AT THE ADDRESS OR PHONE NUMBER LISTED ABOVE.

1. The existing public water, sanitary sewer, and storm sewer utility lines and appurtenances shown on these plans have been taken from record drawings and utility locator maps. The Engineer or City makes no guarantee that the underground utility lines and structures shown comprise all the underground utility lines and appurtenances in the area, either in service or abandoned. The Engineer or City furthermore does not warrant the accuracy of the information shown on the record drawings and the utility maps.

2. The contractor shall be responsible for determining the depth and location of existing underground utilities prior to trenching or excavation and is required to take any precautionary measures to protect all lines shown and / or any other underground utilities not of record shown on the plans. Contractor is responsible for contacting all the franchise utility companies, City utility departments and TEXAS 811 for locates prior to construction.

3. The contractor shall maintain daily contact with each agency's inspector during construction of improvements. No public sanitary sewer, water or storm sewer pipe shall be covered without approval of the county. No subgrade material or rock paving shall be applied without approval of the inspector. The inspector may at any time cause any construction, installation, maintenance of improvements to cease when, in his/her judgment the Standard Construction Details have been violated and may require reconstruction or other works as may be necessary to correct the violation.

4. The owner is responsible for obtaining all applicable city, county, state, and federal permits.

5. Erosion control and storm water management measures must be in place and comply with applicable county, state and federal regulations. Erosion and sedimentation control measures and practices shall be maintained at all times during construction, additional measures and practices shall be installed if deemed necessary by the inspector.

6. The contractor shall make every effort not to impede traffic on existing streets, alleys or fire lanes open to the public. The contractor is responsible for furnishing and installing all temporary and permanent traffic control devices in accordance with the minimum requirements of the latest revision to the Texas Manual on Uniform Traffic Control Handbook.

7. All excavations within the right of way shall be filled and compacted as required by the permitting agency and in no case shall exceed twenty-four (24) hours after completion of work and no excavation shall remain open for longer than 96 hours.

8. The contractor shall be responsible for providing "record drawings" to the Engineer of record / firm defining the location of improvements and any changes to the City approved drawings constructed in conjunction with the project including but not limited to public and private paving, grading, drainage, and utilities and appurtenances. Prior to final acceptance by the City, the Engineer of record / firm shall provide the City with "RECORD DRAWINGS" on 22" x 34" sheets along with PDF's of the record drawings and a digital copy of all files on compact disk (cd) or flash drive in a City approved Autocad (.dwg) format of all approved construction drawings.

"ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN."

RECORD DRAWING

NOTE: THIS RECORD DRAWING IS A COMPILATION OF THE ORIGINAL SEALED ENGINEERING DRAWING FOR THIS PROJECT, INFORMATION FURNISHED BY THE CONTRACTOR, AND FIELD SURVEY VERIFICATION. TO THE BEST OF OUR KNOWLEDGE R-DELTA ENGINEERS, INC. STATES THAT THIS PLAN IS AS-BUILT.

03/13/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

PREPARED BY:

r.delta ENGINEERS
618 MAIN STREET GARLAND, TX. 75040
PH. 972 494 5031 FAX 972 487 2270
www.rdelta.com TBPE REG. F-001515

OWNER/
RAYBURN ELECTRIC COOPERATIVE
950 SIDS ROAD
ROCKWALL, TX 75087
469-402-2100

R-DELTA ENGINEERS, INC.
RDE #3036-21

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

Rayburn Electric Cooperative
r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

STATE OF TEXAS
FRANK A. POLMA
80274
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY FRANK A. POLMA, P.E. 80274 ON 8/04/2025. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

JOB NO. 3036-21	DESIGN BY JMJ		
CREATED	CODE		
PLOTTED 3/16/2026	CHECKED BY RDE		
LAST UPDATE BY			
DRAWN: JMJ	SCALE: NONE		
CHECKED:	DRAWING NO.: ISR-1003	ISSUE:	
APPROVED:			
FILENAME:			

REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032

CIVIL COVER SHEET

SITE INFORMATION:

EXISTING ZONING: PD-44

PROPOSED ZONING: NO CHANGE

PROPOSED USE: INDOOR SHOOTING RANGE
TOTAL AREA: 61,278 SQ FT 1.407 AC

"PD-44" ZONING

MAXIMUM BUILDING HEIGHT: 60 FT
MAXIMUM LOT COVERAGE: 60%
MAXIMUM FLOOR AREA RATIO: 4:1
MAXIMUM IMPERVIOUS PARKING: 85% TO 90%

PROPOSED MAX. BUILDING HEIGHT: 25'-3"
PROPOSED LOT COVERAGE: 14,889/61,278 = 24.30%
PROPOSED FLOOR AREA RATIO: 3,202/61,278 = 5.23%
PROPOSED IMPERVIOUS PARKING: 11,687/61,278 = 19.07%

REQUIRED PARKING:
PROPOSED BUILDING 3,202 SQ FT
(COMMON AREA-CA=972± SQ FT)
(SHOOTING LANES-SL=2,230± SQ FT)
(COMMON AREA) 1 PER 200 SQ FT = 5
(SHOOTING LANES) 1 PER LANE = 4
TOTAL REQUIRED PARKING = 9 SPACES
TOTAL PROVIDED PARKING = 10 SPACES

NOTES:

1. ALL SIDEWALKS ARE 6' UNLESS OTHERWISE INDICATED.
2. ALL DIMENSIONS ARE TO THE FACE OF CURB OR EDGE OF PAVEMENT.
3. ALL RADIUS ARE 2' UNNLESS OTHERWISE STATED.
4. CAMPUS DUMPSTER TO BE UTILIZED FOR REFUSE. LOCAL PLASTIC CARTS TO BE USED FOR COLLECTION INSIDE THE BUILDING. NO OUTDOOR TRASH CANS PROVIDED.
5. THERE SHALL BE NO OUTSIDE STORAGE OR ABOVE GROUND STORAGE TANKS.
6. PROPOSED DRAINAGE PATTERNS MATCH EXISTING DRAINAGE PATTERNS.

EXISTING SITE PARKING DATA

PUBLIC SPACES	ACCESSIBLE SPACES	TOTAL
0	0	0

PROPOSED SITE PARKING DATA

PUBLIC SPACES	ACCESSIBLE SPACES	TOTAL
9	1	10

PAVEMENT INFORMATION:

ALL PAVEMENTS BELOW ARE REINFORCED

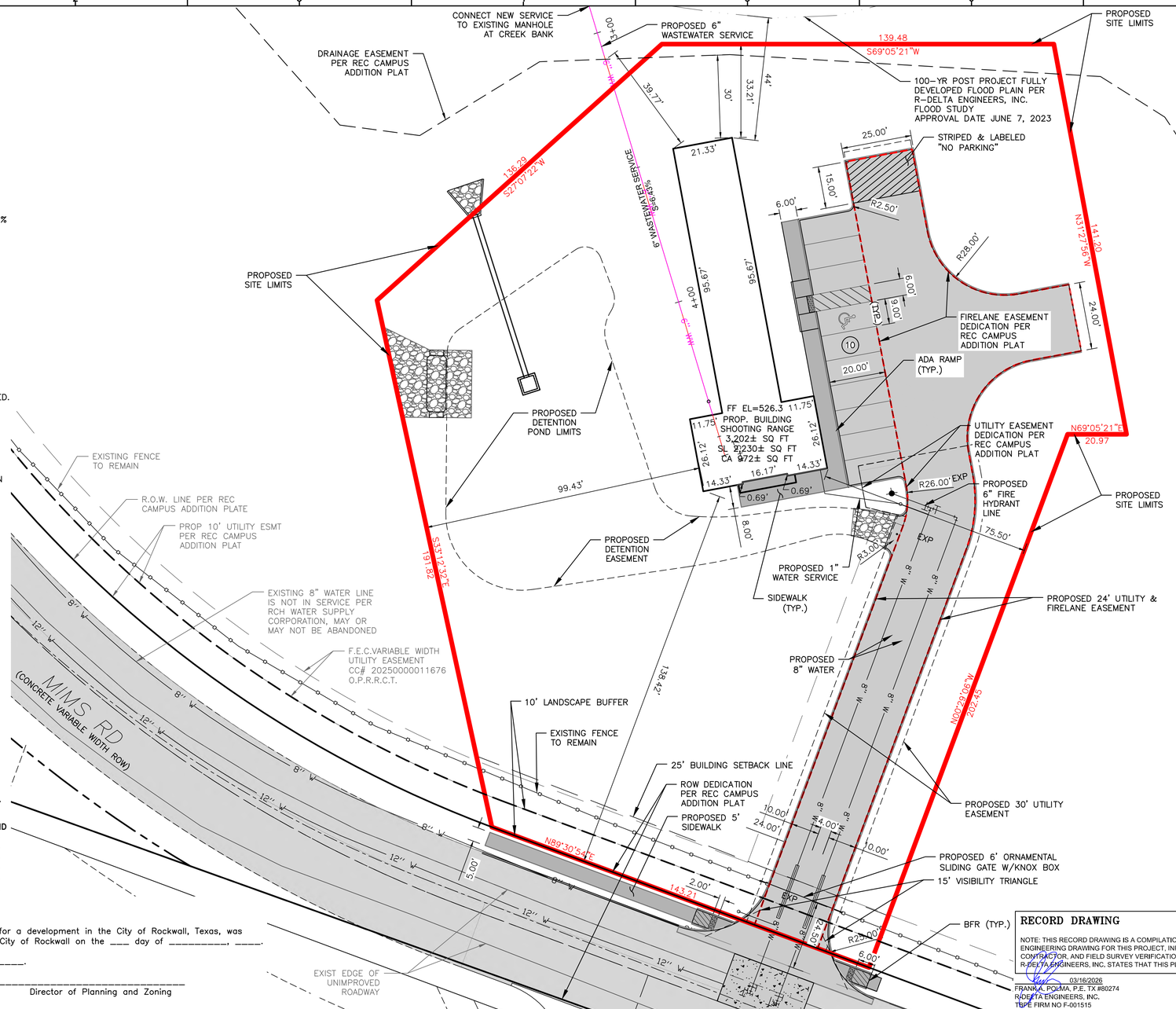
PAVEMENT TYPE	THICKNESS (INCHES)	28-DAY (PSI)	MIN. CEMENT (SACKS/CY) MACHINE	HAND
FIRE LANE	6"	3,600	6.0	6.5
DRIVEWAYS	6"	3,600	6.0	6.5
BARRIER FREE RAMPS	6"	3,600	6.0	6.5
DUMPSTER PADS	7"	3,600	6.0	6.5
SIDEWALKS	4"	3,000	N/A	5.5
PARKING LOT/ DRIVE AISLES	5"	3,000	5.0	5.5

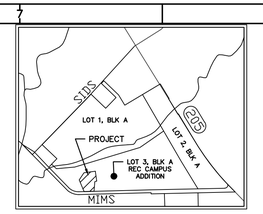
APPROVED:
I hereby certify that the above and foregoing site plan for a development in the City of Rockwall, Texas, was approved by the Planning & Zoning Commission of the City of Rockwall on the ___ day of _____, ____.

WITNESS OUR HANDS, this ___ day of _____, ____.

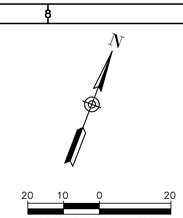
_____ Planning & Zoning Commission, Chairman

_____ Director of Planning and Zoning

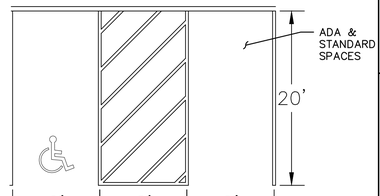




VICINITY MAP
NOT TO SCALE



GRAPHIC SCALE IN FEET
SCALE: 1" = 20'



TYPICAL PARKING SPACE
N.T.S.

ARCHITECT
MCCARTHY ARCHITECTURE
1000 N, FIRST ST.
GARLAND, TX 75040

LANDSCAPE ARCHITECT
DUNKIN SIMS STOFFELS, INC.
4305 PECAN GROVE LANE
ROWLETT, TX 75088

OWNER/ APPLICANT
RAYBURN ELECTRIC COOPERATIVE
950 SIDS ROAD
ROCKWALL, TX 75087
469-402-2100

CIVIL ENGINEER
R - DELTA ENGINEERS, INC.
618 MAIN STREET
GARLAND, TEXAS 75040
TBPE No. F-1515

LEGEND

EM	EX. ELECTRIC METER
ICV	EX. IRRIGATION CONTROL VALVE
B	EX. BOLLARD
WM	EX. WATER METER
SSMH	EX. SANITARY SEWER MANHOLE
EB	EX. ELECTRIC BOX
FH	EX. FIRE HYDRANT
X" W	EX. WATER MAIN PIPE
X" WW	EX. WASTE WATER MAIN PIPE
XX" RCP	EXISTING CONCRETE PIPE & SIZE
	EXISTING WROUGHT IRON FENCE
	EXISTING CHAIN LINK FENCE
PP	EXISTING POWER POLE
OHE	EXISTING OVERHEAD ELECTRIC
	EXISTING GUY WIRE
	EDGE OF ASPHALT
	PROPOSED ORNAMENTAL FENCE
	BFR – CONSTRUCT BARRIER FREE RAMP WITH TRUNCATED DOMED PANELS PER CITY DETAILS. NO EXTRA PAY ITEM FOR MONOLITHIC CURBS.
	ACCESSIBLE AISLE STRIPING
	PROPOSED CONCRETE SIDEWALK
	PROPOSED CONCRETE PAVEMENT
	PROPOSED GROUTED ROCK RIPRAP

RECORD DRAWING

NOTE: THIS RECORD DRAWING IS A COMPILATION OF THE ORIGINAL SEALED ENGINEERING DRAWING FOR THIS PROJECT, INFORMATION FURNISHED BY THE CONTRACTOR, AND FIELD SURVEY VERIFICATION, TO THE BEST OF OUR KNOWLEDGE R-DELTA ENGINEERS, INC. STATES THAT THIS PLAN IS AS-BUILT.

03/16/2026
FRANK A. POLMA, P.E. TX #80274
R-DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

RayburnElectric COOPERATIVE
r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

STATE OF TEXAS — FRANK A. POLMA — 80274 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY FRANK A. POLMA, P.E. 80274 ON 8/04/2025. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

JOB NO.	3036-21	DESIGN BY	JMJ
CREATED		CODE	
PLOTTED	3/16/2026	CHECKED BY	RDE
LAST UPDATE BY			
DRAWN:	JMJ	SCALE:	AS NOTED
CHECKED:		DRAWING NO.:	SP-1
APPROVED:		ISSUE:	
FILENAME:			

REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032
CASE #2025-12
CITY SITE PLAN SUBMITTAL

SURVEY CONTROL:

CONTRACTORS SHALL CONTACT R–DELTA ENGINEERS SURVEY DEPARTMENT FOR PROJECT CONTROL MONUMENTATION.
MR. WAYNE TERRY RPLS, LSLS, AT (972) 494–5031

LEGEND

- EXISTING LIMIT OF TREE LINE
- EXISTING TREE
- XX" CMP — EXISTING CORRUGATED METAL PIPE & SIZE
- 560 — EXISTING CONTOUR SURFACE ELEVATION MAJOR
- 561 — EXISTING CONTOUR SURFACE ELEVATION MINOR
- EDGE OF PAVEMENT
- X X — EXISTING BARBED WIRE FENCE
- EXISTING CHAIN LINK FENCE
- PP — EXISTING POWER POLE
- OHE — EXISTING OVERHEAD ELECTRIC
- EXISTING GUY WIRE
- EXISTING SIGN
- PROPOSED CULVERT
- PROPOSED ORNAMENTAL FENCE
- 560 — PROPOSED CONTOUR SURFACE ELEVATION MAJOR
- 561 — PROPOSED CONTOUR SURFACE ELEVATION MINOR

ESTIMATED QUANTITY SUMMARY

ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBER								APPROX. TOTAL QUANTITY	ITEM NO.
			ISR-1005-1	ISR-1006-1	ISR-1006-2	ISR-1006-3	ISR-1007-3	ISR-1008-1	ISR-1008-2	ISR-1009-3		
1	DEMOLITION FOR DRIVE & SITE CONSTRUCTION (INCLUDES REMOVAL OF MIMS RD EXIST CURB AND FULL CONCRETE PANELS OVER WATER CONNECTIONS)	LS	1								1	1
2	CLEAR & GRUB SITE INCLUDING ALL VEGETATION, & TOPSOIL TO 3-INCH MINIMUM DEPTH	AC	1.4								1.4	2
3	SECURITY FENCE, REMOVE & DISPOSE INCLUDING FURNISHING & SETTING OF NEW END POSTS/PANELS/BRACING AS NECESSARY	LF	60								60	3
4	EXCAVATION UNCL. SITE	CY		1967							1,967	4
5	COMPACTION OF FILL *	CY		2199							2,199	5
6	BORROW DELIVERED	CY		232							232	6
7	5" REINFORCED CONCRETE DRIVEWAY PAVEMENT CLASS "C", CONSTRUCT, INCLUDING ALL JOINTS	SY			155						155	7
8	6" FLEXIBLE BASE FURNISH & INSTALL YARD, ACCESS & POND DRIVES	SY			1392						1,392	8
9	6" REINFORCED CONCRETE DRIVEWAY PAVEMENT CLASS "C" CONSTRUCT, INCLUDING ALL JOINTS	SY			1320						1,320	9
10	WATER SERVICE 1" "TYPE K", FURNISH & INSTALL	LF						15			15	10
11	WATER METER BOX FURNISH & INSTALL	EA						1			1	11
12	WATER IRRIGATION SERVICE 2" "TYPE K", FURNISH & INSTALL	LF						15			15	12
13	WATER IRRIGATION METER BOX FURNISH & INSTALL	EA						1			1	13
14	WATER 6" DR-18 PVC INCLUDING ALL FITTINGS, THRUST BLOCKS, ETC., FURNISH & INSTALL	LF						15			15	14
15	WATER 8" DR-18 PVC INCLUDING ALL FITTINGS, THRUST BLOCKS, ETC., FURNISH & INSTALL	LF						380			380	15
16	GATE VALVE 6" FURNISH & INSTALL	EA						1			1	16
17	GATE VALVE 8" FURNISH & INSTALL	EA						3			3	17
18	GATE VALVE 12" FURNISH & INSTALL	EA						2			2	18
19	FIRE HYDRANT STANDARD FURNISH & INSTALL	EA						1			1	19
20	WASTEWATE 6" PVC SDR-26, FURNISH & INSTALL	LF							337		337	20
21	TWO WAY 6" WASTEWATER CLEANOUT, FURNISH & INSTALL	EA							3		3	21
22	CONNECTED WASTEWATER PIPE TO EXISTING MANHOLE	EA							1		1	22
23	STORM SEWER 18" RCP CLASS V FURNISH & INSTALL	LF					61				61	23
24	5' SQUARE NCTCOG DROP INLET (MOD.) FURNISH & INSTALL, INCLUDING ALL INCIDENTALS	EA					1				1	24
25	TXDOT REINFORCED CONCRETE CLASS "C" HEADWALL WITH FLARED WINGS (CH-FW-0) FOR 1-18" RCP, CONSTRUCT	EA					1				1	25
26	ENGINEERED TRENCH SAFETY FOR CULVERTS, STORM SEWER, 8" WATER & 6" WASTEWATER LATERAL	LF					61	380	337		778	26
27	CONSTRUCT 9" THICK CONCRETE GROUTED ROCK RIPRAP INCLUDING GEOTEXTILE FABRIC FURNISH & INSTALL	SY					28				28	27
28	ROCK RIPRAP 8" THICK (D50=6") INCLUDING GEOTEXTILE FABRIC FURNISH & INSTALL	SY					28				28	28
29	BROADCAST SEED & FERTILIZER, INCLUDING TOPSOIL WHERE NECESSARY	SY							5,529		5,529	29
30	EROSION CONTROL	LS							1		1	30
31	SIGN & BARRICADE (TRAFFIC CONTROL)	LS									1	31

NOTE: CONTRACTOR SHALL FURNISH ALL MATERIALS REQUIRED FOR CONSTRUCTION OF ALL ITEMS SUMMARIZED ON THIS SHEET.

*** ESTIMATED QUANTITY FOR BIDDING UNIT PRICE, PAYMENT WILL BE BASED ON AS-CONSTRUCTED QUANTITY.

* COMPACTION OF FILL SHALL INCLUDE SCARIFICATION, MOISTURE CONDITIONING AND RECOMPACTION TO A MINIMUM OF NINETY–FIVE (95%) OF MAXIMUM STANDARD PROCTOR DRY DENSITY WITH A MOISTURE CONTENT AT OR ABOVE OPTIMUM MOISTURE CONTENT PER ASTM D698, INCLUDING ALL INCIDENTALS NECESSARY TO COMPLETE IN PLACE ACCORDING TO THE PLANS, DETAILS, AND SPECIFICATIONS. NO EXTRA PAY ITEM FOR SCARIFICATION AND RECOMPACTION IN AREAS RECEIVING FILL.

EARTHWORK SUMMARY (FOR CONTRACTOR'S INFORMATION ONLY)		
SITE STRIPPING 6,585 S.Y. (549 C.Y.@3") TOPSOIL 5,529 S.Y. (615 C.Y.@4") IMPORT OF TOPSOIL	76 C.Y.	-
EXCAVATION	1,967 C.Y.	-
EMBANKMENT	2,199 C.Y.	-
NET	232 C.Y.	IMPORT
⁜ BORROW	500 C.Y.	ONSITE

⁜ NOTE: BORROW IS INCLUDED AS A CONTINGENCY IN THE EVENT ADDITIONAL MATERIAL BECOMES NECESSARY FOR EMBANKMENT (FILL) CONSTRUCTION. BORROW SHALL BE OBTAINED ONSITE FROM THE PROPERTY. PAYMENT FOR BORROW SHALL BE BY CUBIC YARD AND SHALL INCLUDE STRIPPING, DISPOSAL OF SURPLUS, AND VEGETATIVE STABILIZATION OF BORROW AREA. COMPACTION OF BORROW IS INCLUDED IN THE TOTAL FOR ITEM 5 (COMPACTION OF FILL).

RECORD DRAWING

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03/16/2026
FRANK A. POLMA, P.E. TX #80274
R-DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

PROJECT NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRENCH AND EXCAVATION SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY AND COUNTY STANDARDS, TEXAS LAW, AND O.S.H.A. STANDARDS FOR ALL EXCAVATION IN EXCESS OF FIVE FEET IN DEPTH.

2. THE LOCATION OF ALL UTILITIES SHOWN ON THESE PLANS ARE TAKEN FROM EXISTING PUBLIC RECORDS. THE EXACT LOCATION AND ELEVATION OF ALL PUBLIC UTILITIES MUST BE DETERMINED BY THE CONTRACTOR. IT SHALL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT.

3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL PUBLIC UTILITIES IN THE CONSTRUCTION OF THIS PROJECT. ALL MANHOLES, CLEAN–OUTS, VALVE BOXES, FIRE HYDRANTS, ETC. MUST BE ADJUSTED TO PROPER LINE AND GRADE BY THE CONTRACTOR AS NECESSARY PRIOR TO AND AFTER THE PLACING OF PERMANENT PAVING. UTILITIES MUST BE MAINTAINED TO PROPER LINE AND GRADE DURING CONSTRUCTION OF THE PAVING FOR THIS PROJECT.

4. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 48 HRS. PRIOR TO ANY EXCAVATION TO FACILITATE UNDERGROUND DAMAGE PREVENTION: TEXAS 811 (OR 800–344–8377) AND FOR WATER AND SEWER CONTACT THE CITY 972–771–7730.

5. ALL RADII ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.

6. SITE AND ACCESS DRIVE PREPARATION SHALL INCLUDE THE REMOVAL OF ALL EXISTING VEGETATION, TOPSOIL, AND OTHER EXISTING ELEMENTS AS REQUIRED. AREAS TO RECEIVE FILL OR PAVING SHALL BE STRIPPED TO A MINIMUM DEPTH OF THREE (3) INCHES AND GRUBBED TO REMOVE VEGETATION AND ORGANIC MATTER. STRIPPING, GRUBBING, AND SUBGRADE PREPARATION FOR PAVING AREAS SHALL EXTEND TO 5 FEET BEYOND THE PAVING LIMITS. STRIPPED VEGETATION AND ORGANIC MATTER MAY BE REUSED IN AREAS OUTSIDE OF PAVING AREAS THAT REQUIRE THE ADDITION OF TOPSOIL IF THESE MATERIALS MEET THE TOPSOIL SPECIFICATION.

   THE CONTRACTOR SHALL THEN EXCAVATE TO THE PROPOSED GRADE/SUBGRADE AS NECESSARY. PRIOR TO THE PLACEMENT OF ANY STRUCTURAL FILL, THE EXPOSED SUBGRADE SHOULD BE EXAMINED BY BY THE GEOTECHNICAL ENGINEER OR AUTHORIZED REPRESENTATIVE. THE EXPOSED SUBGRADE SHOULD BE THOROUGHLY PROOFROLLED WITH PREVIOUSLY APPROVED CONSTRUCTION EQUIPMENT HAVING A MINIMUM AXLE LOAD OF 20 TONS (E.G. FULLY LOADED TANDEM–AXLE DUMP TRUCK) TO IDENTIFY ANY SOFT, UNSUITABLE, OR OTHER LOCALIZED YIELDING MATERIALS. THE AREAS SUBJECT TO PROOFROLLING SHOULD BE TRAVERSED BY THE EQUIPMENT IN TWO PERPENDICULAR (ORTHOGONAL) WITH OVERLAPPING PASSES OF THE OF THE VEHICLE UNDER THE OBSERVATION OF THE GEOTECHNICAL ENGINEER OR AUTHORIZED REPRESENTATIVE. ANY UNSTABLE OR "PUMPING" SUBGRADE AREAS IDENTIFIED BY THE PROOFROLLING SHOULD BE MARKED FOR REPAIR PRIOR TO PLACEMENT OF ANY SUBSEQUENT FILL OR OTHER CONSTRUCTION MATERIALS. METHODS OF STABILIZING "PUMPING" AREAS MAY INCLUDE UNDERCUTTING, MOISTURE CONDITIONING, OR CHEMICAL STABILIZATION AND SHOULD BE DISCUSSED WITH THE GEOTECHNICAL ENGINEER TO DETERMINE THE APPROPRIATE PROCEDURE. EXCAVATED AREAS SHOULD BE BACKFILLED WITH SUITABLE, PROPERLY PLACED AND COMPACTED FILL IN ACCORDANCE WITH THE FILL SPECIFICATIONS HEREIN.

   SUITABLE AREAS TO RECEIVE FILL OR FLEXIBLE BASE SHALL BE SCARIFIED TO A MINIMUM DEPTH OF TWELVE FEET AND UNIFORMLY COMPACTED TO A MINIMUM OF NINETY–FIVE PERCENT (95%) TO NINETY–EIGHT PERCENT (98%) MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) WITH A MINIMUM MOISTURE CONTENT +5 PERCENTAGE POINTS ABOVE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THAT TEST. ALL FILLS SHOULD BE BENCHED INTO THE EXISTING SOILS.

   ON–SITE SOILS FREE OF VEGETATION, DEBRIS, AND ROCKS NO GREATER THAN TWO (2) INCHES IN MAXIMUM DIMENSION ARE GENERALLY SUITABLE FOR SITE GRADING OPERATIONS. IMPORTED FILL MATERIALS, IF USED, SHALL BE CLEAN, SOIL BORROW FOR BACKFILLING AND SITE GRADING AND SHALL BE EARTHEN COHESIVE SOIL MATERIALS CONFORMING TO THE PROJECT SPECIFICATIONS WITH A PLASTICITY INDEX (PI) NO GREATER THAN 40 WITH NO ROCK GREATER THAN FOUR (4) INCHES IN MAXIMUM DIMENSION.

   THE SOILS SHALL BE SPREAD ON PREVIOUSLY SCARIFIED AND COMPACTED GROUND IN LOOSE LIFTS LESS THAN EIGHT (8) INCHES THICK FOR MASS GRADING OPERATIONS AND LESS THAN FOUR (4) INCHES THICK FOR TRENCH TYPE EXCAVATIONS WHERE WALK BEHIND OR "JUMPING JACK" COMPACTION EQUIPMENT IS USED AND UNIFORMLY COMPACTED TO A MINIMUM OF NINETY–FIVE PERCENT (95%) MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D698) WITH A MOISTURE CONTENT AT +5 PERCENTAGE POINTS ABOVE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THAT TEST. UPON COMPLETION OF FILLING OPERATIONS, CARE SHOULD BE TAKEN TO MAINTAIN THE SOIL MOISTURE CONTENT AS NECESSARY PRIOR TO CONSTRUCTION OF BUILDING FOUNDATIONS. IF FILL OPERATIONS ARE SUSPENDED AND THE SURFACE OF THE PREVIOUSLY PLACED MATERIAL BECOMES DESICCATED OR RUTTED, THE SURFACE SHALL BE REWORKED AND RETESTED AS REQUIRED PRIOR TO PLACEMENT OF A SUBSEQUENT LIFT. FIELD DENSITY AND MOISTURE TESTS SHOULD BE PERFORMED ON EACH LIFT AS NECESSARY TO VERIFY THAT ADEQUATE COMPACTION IS ACHIEVED. A MINIMUM OF ONE TEST PER 2,500 SQUARE FEET PER LIFT IS REQUIRED. UTILITY TRENCH BACKFILL SHOULD BE TESTED AT A RATE OF ONE TEST PER LIFT PER EACH 150 LINEAR FEET OF TRENCH (TWO TESTS MINIMUM PER LIFT).

   FIRE LANE AND BUILDING SUBGRADE AREAS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF TWELVE FEET AND UNIFORMLY COMPACTED TO A MINIMUM DEPTH OF 6 INCHES TO A MINIMUM OF NINETY–FIVE PERCENT (95%) TO NINETY–EIGHT PERCENT (98%) MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D698) WITH A MOISTURE CONTENT +5 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY THAT TEST. AS SPECIFIED IN THE BELOW REFERENCED GEOTECHNICAL REPORT, 8 INCHES COMPACTED DEPTH OF LIME STABILIZED SOIL (8% HYDRATED LIME AT 36 LBS/SY) IS RECOMMENDED FOR STANDARD DUTY, MEDIUM DUTY, AND DUMPSTER PAVEMENT AREAS. THERE IS AN OPTION TO REPLACE THE LIME STABILIZED SUBGRADE IN THESE PAVEMENT AREAS WITH 6 INCHES OF COMPACTED SOIL SUBGRADE AND TO INCREASE THE CONCRETE PAVEMENT THICKNESSES BY ONE HALF INCH TO EACH OF THE STANDARD DUTY AND MEDIUM DUTY PAVEMENT THICKNESSES IN THE PLANS. IF LIME STABILIZATION IS CONSIDERED, THE SUBGRADE SOILS SHOULD BE EVALUATED FOR SOLUBLE SULFATE CONCENTRATIONS TO EVALUATE THE SUITABILITY OF SOILS FOR LIME STABILIZATION.

   FLEXIBLE BASE SURFACING MEETING THE REQUIREMENTS OF TxDOT ITEM 247 TYPE A GRADE 1–2 (WET BALL MILL MAX. = 25%) SHALL BE UNIFORMLY COMPACTED TO A MINIMUM DEPTH OF EIGHT (8) INCHES TO A MINIMUM OF NINETY–EIGHT (98) PERCENT MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D698) WITH A MOISTURE CONTENT +2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY THAT TEST.

   SOIL STERILANT SHALL BE APPLIED TO THE BUILDING AREA RECEIVING FLEXIBLE BASE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS PRIOR TO PLACEMENT OF FLEXIBLE BASE.

   ALL DRAINAGE AND UTILITY TRENCH EXCAVATION BACKFILL ABOVE PIPE EMBEDMENT MATERIAL SHALL MEET THE ABOVE COMPACTION SPECIFICATIONS FOR FILL MATERIALS. THE UPPER LAYER OF ALL TRENCHES AND REPAIRS TO ACCESS DRIVES, IF NECESSARY, SHALL BE BACKFILLED WITH FLEXIBLE BASE SURFACING MEETING THE REQUIREMENTS OF TXDOT ITEM 247 TYPE A GRADE 1–2 (WET BALL MILL MAX. = 25%). COMPACTION SPECIFICATIONS SHALL BE AS NOTED ABOVE FOR FLEXIBLE BASE SURFACING.

7. EXISTING VEGETATION SHALL BE UNDISTURBED, WHENEVER POSSIBLE, THROUGHOUT THE REMAINDER OF THE SITE NOT AFFECTED BY THE INSTALLATION OF THE APPROVED FACILITIES. ALL AREAS DISTURBED OUTSIDE OF THE YARD SURFACING AND DRIVEWAY PAVING AREAS BY CONTRACTOR'S OPERATIONS SHALL BE STABILIZED BY BROADCAST SEEDING AND FERTILIZER OVER 4" OF TOP SOIL UPON COMPLETION OF GRADING OPERATIONS. CONTRACTOR SHALL PROVIDE WATER AS NECESSARY TO ESTABLISH PERMANENT VEGETATION IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

8. CONCRETE PAVING SHALL HAVE A CONSTRUCTION JOINT OR SAWED CONTROL JOINT EVERY FIFTEEN (15) FEET TRANSVERSELY AND LONGITUDINALLY WITH EXPANSION JOINTS AT INTERSECTIONS, BEGINNING AND ENDING OF HORIZONTAL CURVES, AND AT MAXIMUM TWO HUNDRED (200) FEET SPACING. JOINTS SHALL INTERSECT ALL PAVEMENT EDGES AT NINETY (90) DEGREES INCLUDING RADIUS RETURNS. WHEN INTERSECTING RADIUS RETURNS, THE MINIMUM PERPENDICULAR DISTANCE INTO THE RETURN SHALL BE ONE AND A HALF (1.5) FEET.

9. THE PAVING CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO INSURE ALL UNDERGROUND CONSTRUCTION IS COMPLETE PRIOR TO SUBGRADE PREPARATION.

10. REFER TO PROJECT GEOTECHNICAL SPECIFICATIONS IN FARGO REPORT OF GEOTECHNICAL EXPLORATION REPORT FOR PROJECT NO. G24–4348 TITLED "PROPOSED ADDITIONS, GOLIAD STREET AND MIMS ROAD, ROCKWALL, TEXAS" DATED SEPTEMBER 19, 2024 FOR SITE PREPARATION, EXCAVATION, FILL COMPACTION, TESTING REQUIREMENTS, ETC. THESE DOCUMENTS SHALL BECOME A PART OF THESE PLANS AND SPECIFICATIONS.

11. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

Rayburn Electric Cooperative
r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY FRANK A. POLMA, P.E. 80274 ON 8/04/2025. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

JOB NO. 3036–21	DESIGN BY JMJ
CREATED	CODE
PLOTTED 3/16/2026	CHECKED BY RDE
LAST UPDATE BY	
DRAWN: JMJ	SCALE: NONE
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APPROVED:	ISSUE:
FILENAME:	

REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032

LEGEND PROJECT CONTROL
PROJECT NOTES & QUANTITIES

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 EMS 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^{th}) 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.

RECORD DRAWING

NOTE: THIS RECORD DRAWING IS A COMPILATION OF THE ORIGINAL SEALED ENGINEERING DRAWING FOR THIS PROJECT, INFORMATION FURNISHED BY THE CONTRACTOR, AND FIELD SURVEY VERIFICATION. TO THE BEST OF OUR KNOWLEDGE R-DELTA ENGINEERS, INC. STATES THAT THIS PLAN IS AS-BUILT.

03/16/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

GENERAL CONSTRUCTION NOTES
Sheet 1 of 2
October 2020

CITY OF ROCKWALL
ENGINEERING DEPARTMENT

385 S. Goliad
Rockwall, Texas 75087

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

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

Rayburn Electric Cooperative
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

STATE OF TEXAS
FRANK A. POLMA
80274
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY FRANK A. POLMA, P.E. 80274 ON 8/04/2025. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

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PLOTTED 3/16/2026	CHECKED BY RDE
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REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032
COR GENERAL CONSTRUCTION NOTES

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)	Strength 28-Day (psi)	Minimum Cement (sacks / CY)		Steel Reinforcement	
			Machine placed	Hand Placed	Bar #	Spacing (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^{th}) 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.”

RECORD DRAWING

NOTE: THIS RECORD DRAWING IS A COMPILATION OF THE ORIGINAL SEALED ENGINEERING DRAWING FOR THIS PROJECT, INFORMATION FURNISHED BY THE CONTRACTOR, AND FIELD SURVEY VERIFICATION, TO THE BEST OF OUR KNOWLEDGE R-DELTA ENGINEERS, INC. STATES THAT THIS PLAN IS AS-BUILT.

03/16/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

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

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

RayburnElectric COOPERATIVE
r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

STATE OF TEXAS — FRANK A. POLMA — 80274 — REGISTERED PROFESSIONAL ENGINEER

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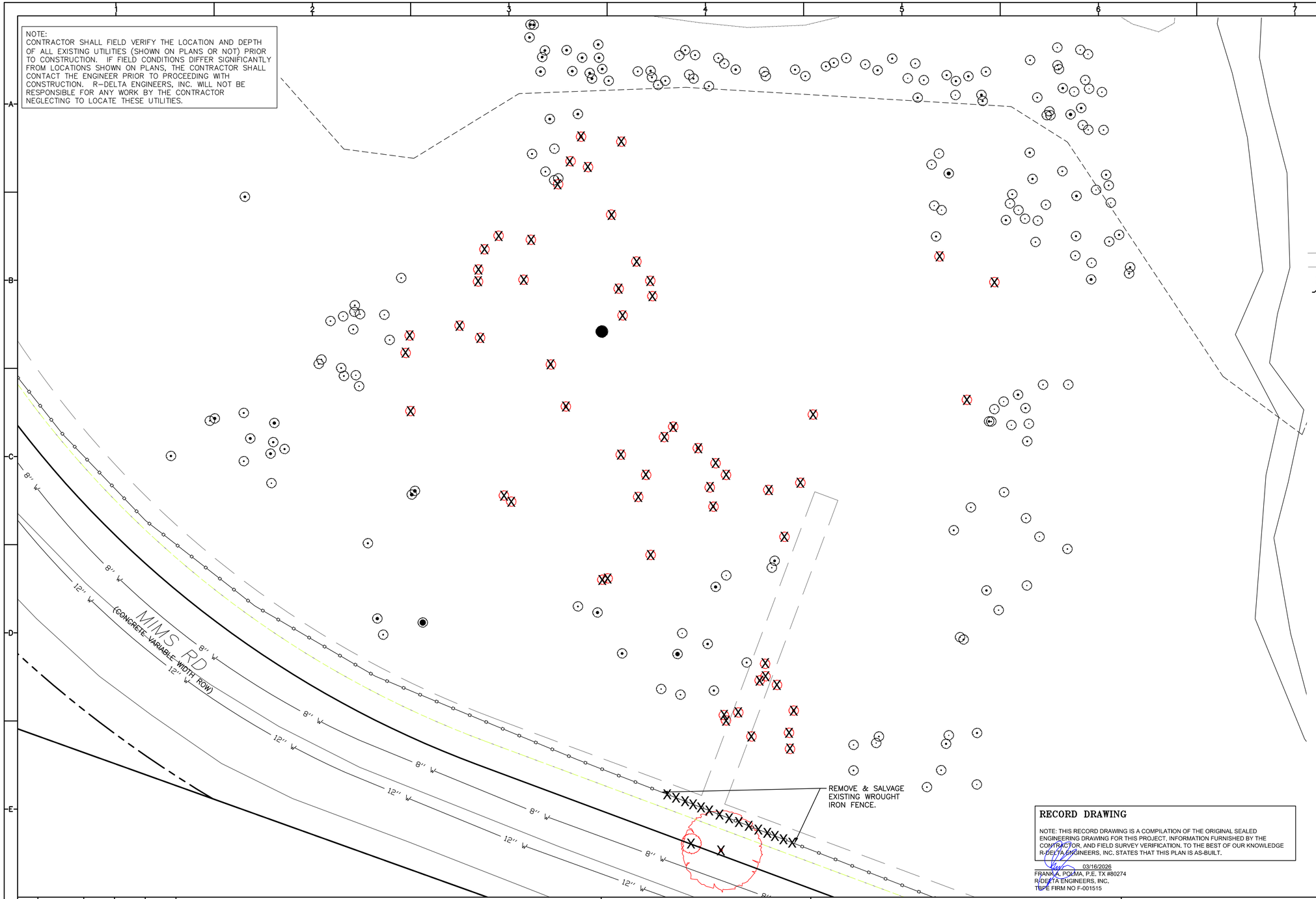
JOB NO. 3036-21	DESIGN BY JMJ
CREATED	CODE
PLOTTED 3/16/2026	CHECKED BY RDE
LAST UPDATE BY	
DRAWN: JMJ	SCALE: NONE
CHECKED:	DRAWING NO.: ISR-1004-3
APPROVED:	ISSUE:
FILENAME:	

REC CAMPUS EXPANSION INDOOR SHOOTING RANGE

MIMS RD
ROCKWALL, TX 75032

COR GENERAL CONSTRUCTION NOTES

NOTE:
CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (SHOWN ON PLANS OR NOT) PRIOR TO CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON PLANS, THE CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION. R-DELTA ENGINEERS, INC. WILL NOT BE RESPONSIBLE FOR ANY WORK BY THE CONTRACTOR NEGLECTING TO LOCATE THESE UTILITIES.



N

LEGEND

- EXISTING WROUGHT IRON FENCE
- EXISTING CHAIN LINK FENCE
- EXISTING ITEM REMOVAL
- PROPOSED LIMIT OF TREE REMOVAL (SEE NOTE 6)
- TREE REMOVAL
- 100-YR POST PROJECT FULLY DEVELOPED FLOOD PLAIN PER R-DELTA ENGINEERS, INC. FLOOD STUDY
- DRAINAGE EASEMENT PER REC CAMPUS ADDITION PLAT

NOTES:

1. REFER TO SHEET ISR-1004-1 FOR LEGEND, PROJECT CONTROL AND PROJECT NOTES.
2. THE EXISTING SITE SHALL BE CLEARED, GRUBBED, AND 3" OF TOP SOIL STRIPPED, WHERE NEEDED.
3. REFER TO SHEET LP-1 FOR TREESCAPE PLAN WITH MITIGATION CALCULATIONS.

BENCHMARK:

CP8 – SPIKE IN POWER POLE AT NORTHWEST PROPERTY CORNER OF S.H. 205 & EAST CAMPUS DR.
N=7,015,703.47
E=2,599,978.77
ELEV.=543.67

THE COORDINATES AND BEARINGS SHOWN HEREON ARE TIED TO THE TEXAS COORDINATE SYSTEM OF 1983, NORTH CENTRAL ZONE (4202).

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03/16/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

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STATE OF TEXAS
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80274
LICENSED PROFESSIONAL ENGINEER

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PLOTTED	3/16/2026	CHECKED BY	RDE
LAST UPDATE BY			
DRAWN:	JMJ	SCALE:	AS NOTED
CHECKED:		DRAWING NO.:	ISR-1005
APPROVED:		ISSUE:	
FILENAME:			

REC CAMPUS EXPANSION INDOOR SHOOTING RANGE

MIMS RD
ROCKWALL, TX 75032

DEMOLITION PLAN

NOTE:
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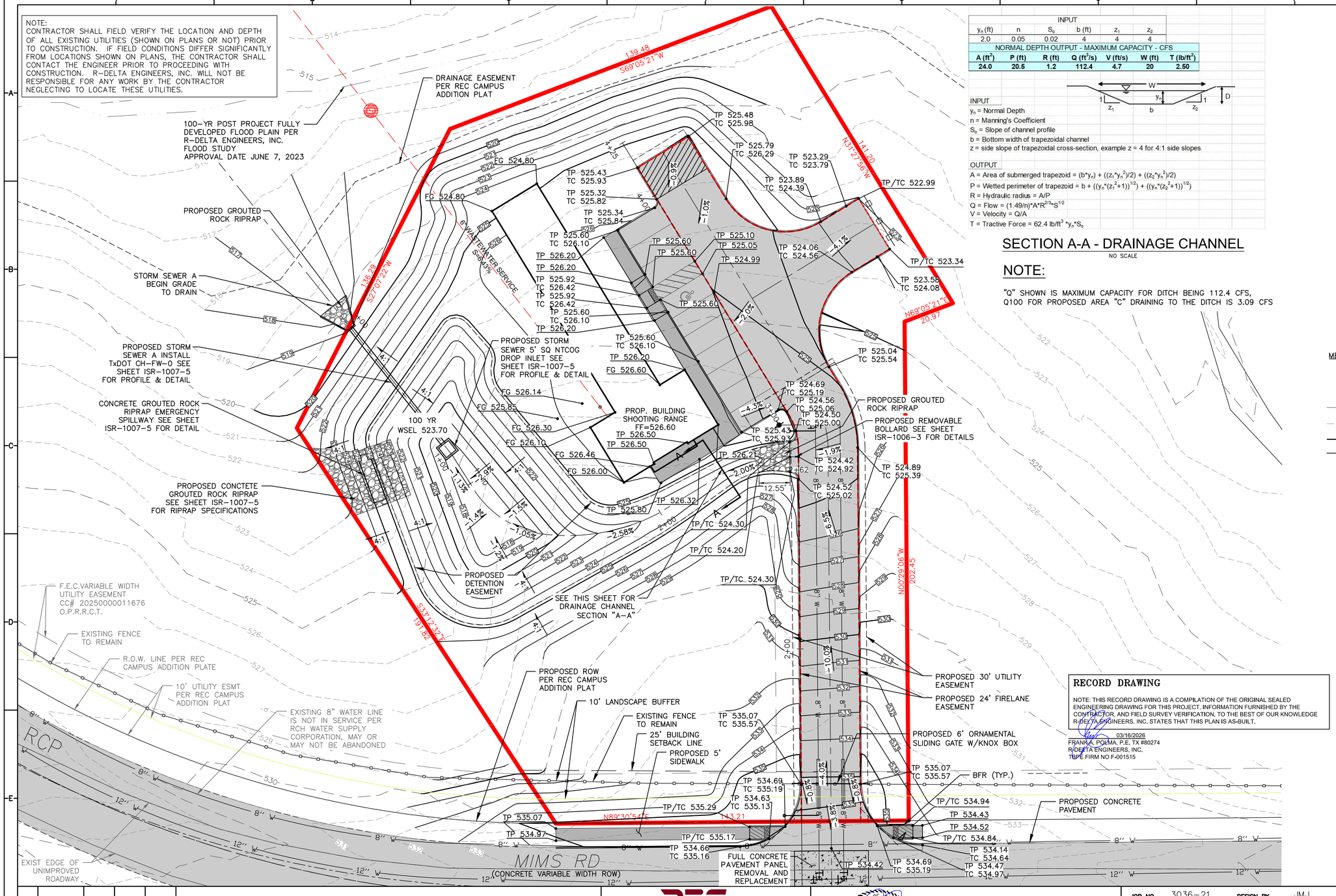


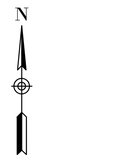
INPUT					
y_n (ft)	n	S_o	b (ft)	z_1	z_2
2.0	0.05	0.02	4	4	4
NORMAL DEPTH OUTPUT - MAXIMUM CAPACITY - CFS					
A (ft^2)	P (ft)	R (ft)	Q (ft^3/s)	V (ft/s)	W (ft)	T (lb/ft^2)
24.0	20.5	1.2	112.4	4.7	20	2.50

INPUT
y_n = Normal Depth
n = Manning's Coefficient
S_o = Slope of channel profile
b = Bottom width of trapezoidal channel
z = side slope of trapezoidal cross-section, example z = 4 for 4:1 side slopes

OUTPUT
A = Area of submerged trapezoid = $(b*y_n) + ((z_1*y_n^2)/2) + ((z_2*y_n^2)/2)$
P = Wetted perimeter of trapezoid = $b + ((y_n*(z_1^2+1))^{1/2}) + ((y_n*(z_2^2+1))^{1/2})$
R = Hydraulic radius = A/P
Q = Flow = $(1.49/n)*A*R^{2/3}*S^{1/2}$
V = Velocity = Q/A
T = Tractive Force = 62.4 lb/ft^3 $*y_n*S_o$

SECTION A-A - DRAINAGE CHANNEL
NO SCALE

NOTE:
"Q" SHOWN IS MAXIMUM CAPACITY FOR DITCH BEING 112.4 CFS, Q100 FOR PROPOSED AREA "C" DRAINING TO THE DITCH IS 3.09 CFS



20 10 0 20
GRAPHIC SCALE IN FEET
SCALE: 1" = 20'

LEGEND

- BFR – CONSTRUCT BARRIER FREE RAMP WITH TRUNCATED DOMED PANELS PER CITY DETAILS. NO EXTRA PAY ITEM FOR MONOLITHIC CURBS.
- ACCESSIBLE AISLE STRIPING
- PROPOSED 4" REINFORCED CLASS "C" CONCRETE
- PROPOSED 6" REINFORCED CLASS "C" CONCRETE
- PROPOSED GROUTED ROCK RIPRAP
- MEG 570.50± — MATCH EXISTING GRADE ELEVATION (SEE ABBREVIATION LIST)
- TR 570.50 — PROPOSED SPOT ELEVATION (SEE ABBREVIATION LIST)
- 550 — EXISTING SURFACE CONTOUR MAJOR
- 551 — EXISTING SURFACE CONTOUR MINOR
- 550 — PROPOSED SURFACE CONTOUR MAJOR
- 551 — PROPOSED SURFACE CONTOUR MINOR

POINT ABBREVIATIONS:

FG	FINISHED GRADE
MEG	MATCH EXISTING GRADE
TP	TOP OF CONCRETE PAVING
TC	TOP OF CURB

BENCHMARK:

CP8 – SPIKE IN POWER POLE AT NORTHWEST PROPERTY CORNER OF S.H. 205 & EAST CAMPUS DR.
N=7,015,703.47
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ELEV.=543.67

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NOTES:

1. SEE SHEET RP-1004-1 FOR LEGEND, PROJECT CONTROL, AND PROJECT NOTES.
2. ALL PROPOSED SPOT AND CONTOUR ELEVATIONS ARE TOP OF CONCRETE SURFACING OR FINISHED GRADE ELEVATIONS UNLESS OTHERWISE SPECIFIED.

DISTURBED AREA = 1.501 ACRES

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03/16/2026
FRANK A. POLMA, P.E. TX #80274
R-DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

Rayburn Electric Cooperative
r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
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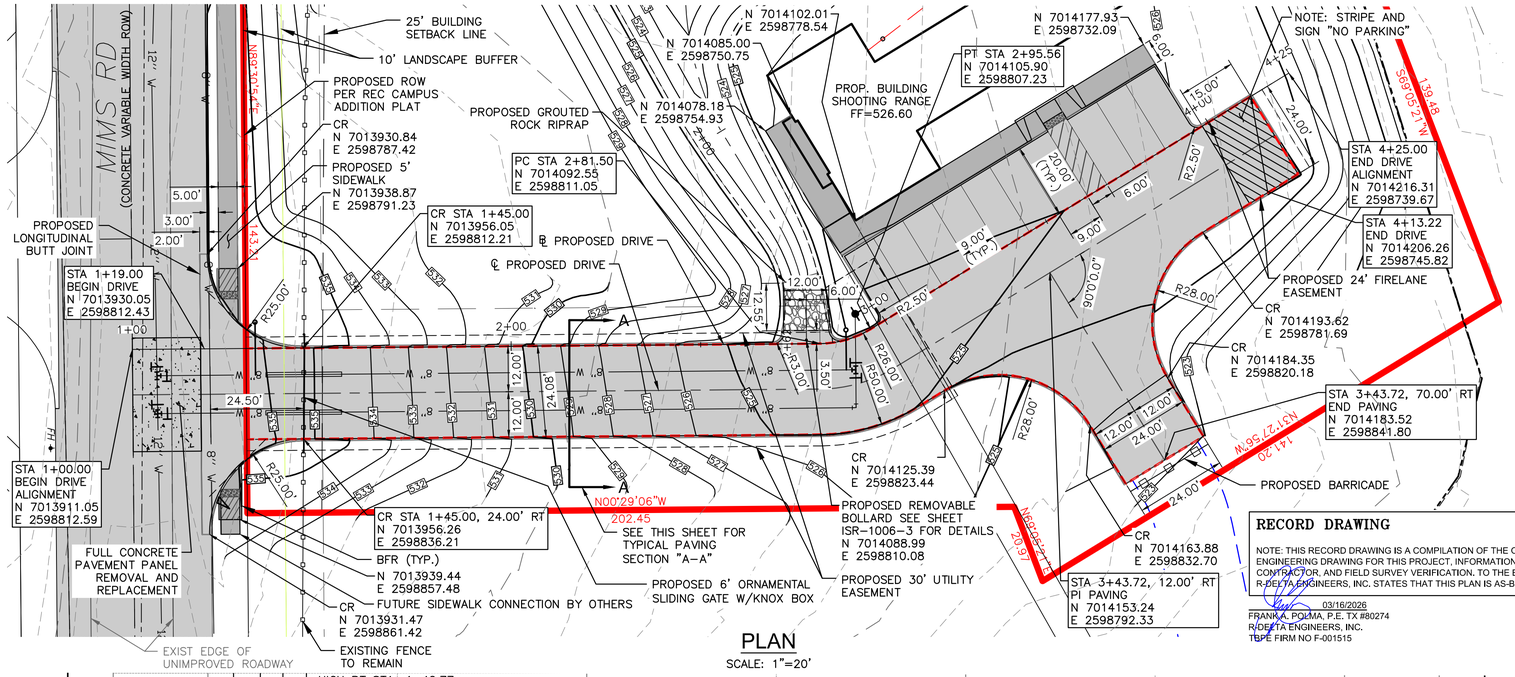
CREATED	CODE
PLOTTED 3/16/2026	CHECKED BY RDE
LAST UPDATE BY	
DRAWN: JMJ	SCALE: AS NOTED
CHECKED:	DRAWING NO.: ISR-1006-1
APPROVED:	ISSUE:
FILENAME:	

REC CAMPUS EXPANSION INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032

GRADING PLAN



PLAN

SCALE: 1"=20'

NOTE:
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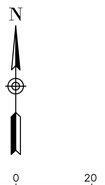

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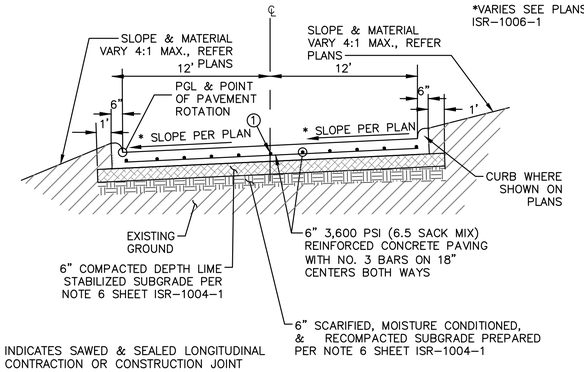
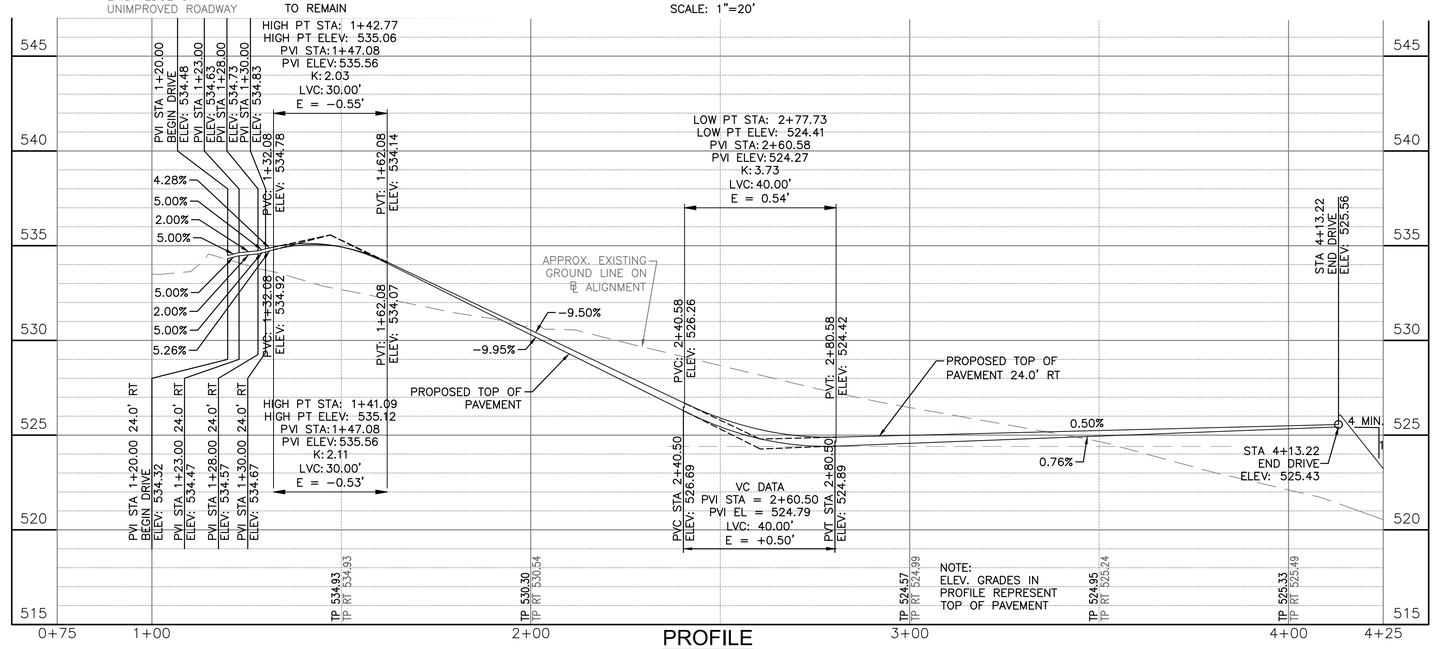


① INDICATES SAWED & SEALED LONGITUDINAL CONTRACTION OR CONSTRUCTION JOINT

SECTION A-A - FIRE LANE PAVING

NO SCALE



PROFILE

SCALE (H): 1"=20'
SCALE (V): 1"=4'

LEGEND

- BFR – CONSTRUCT BARRIER FREE RAMP WITH TRUNCATED DOMED PANELS PER CITY DETAILS. NO EXTRA PAY ITEM FOR MONOLITHIC CURBS.
- ACCESSIBLE AISLE STRIPING
- PROPOSED 4" CONC. PVMT. 3,000 PSI (5.5 SACK MIX) NO. 3 BARS @ 24" C–C MAX SEE SHEET ISR-1006-3 FOR SUBGRADE SPECIFICATIONS
- PROPOSED 6" CONC. PVMT. 3,600 PSI (6.5 SACK MIX) NO. 3 BARS @ 18" C–THIS SHEET FOR SUBGRADE SPECIFICATIONS
- PROPOSED 8" CONC. PVMT. 3,600 PSI (6.5 SACK MIX) NO. 3 BARS @ 18" C–THIS W/6" FLEXBASE
- PROPOSED GROUTED ROCK RIPRAP SEE SHEET ISR–1007–5 FOR DETAILS
- MEG 570.50± — MATCH EXISTING GRADE ELEVATION (SEE ABBREVIATION LIST)
- TR 570.50 — PROPOSED SPOT ELEVATION (SEE ABBREVIATION LIST)
- 550 — EXISTING SURFACE CONTOUR MAJOR
- 551 — EXISTING SURFACE CONTOUR MINOR
- 550 — PROPOSED SURFACE CONTOUR MAJOR
- 551 — PROPOSED SURFACE CONTOUR MINOR

POINT ABBREVIATIONS:

FG FINISHED GRADE
MEG MATCH EXISTING GRADE
TP TOP OF CONCRETE PAVING
TR TOP OF ROCK SURFACING

BENCHMARK:

CP8 – SPIKE IN POWER POLE AT NORTHWEST PROPERTY CORNER OF S.H. 205 & EAST CAMPUS DR.
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NOTES:

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3. ALL PROPOSED CONTOUR ELEVATIONS ARE TOP OF CONCRETE SURFACING OR FINISHED GRADE ELEVATIONS UNLESS OTHERWISE SPECIFIED.

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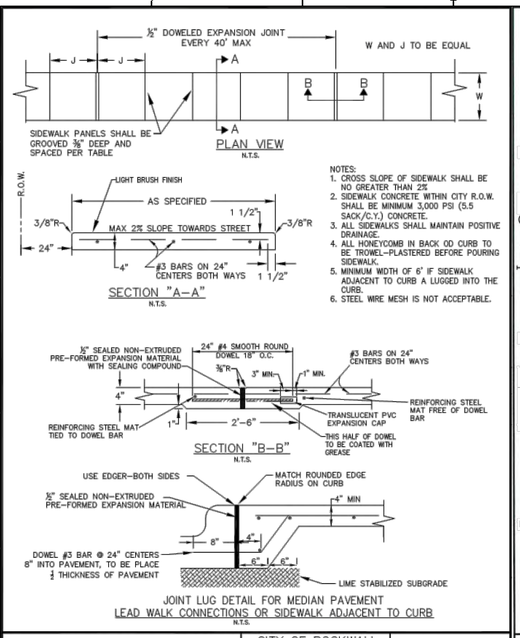
CHECKED:	DRAWING NO.: ISR-1006-2
APPROVED:	ISSUE:
FILENAME:	

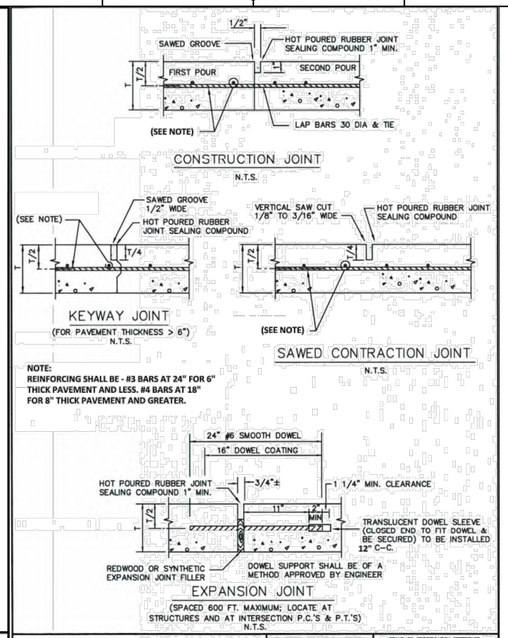
REC CAMPUS EXPANSION INDOOR SHOOTING RANGE

MIMS RD
ROCKWALL, TX 75032

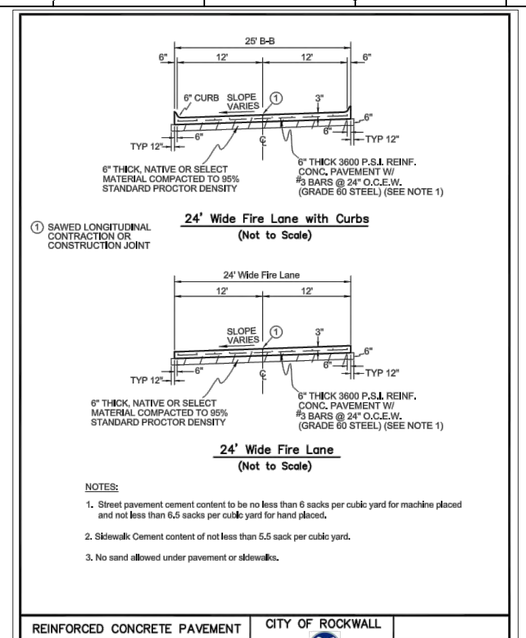
PAVING DIMENSIONAL CONTROL & DRIVE PROFILE



REINFORCED CONCRETE SIDEWALKS	CITY OF ROCKWALL		
JOINTS AND SPACING		DATE AUG '19	DRAWING NO. R-2170



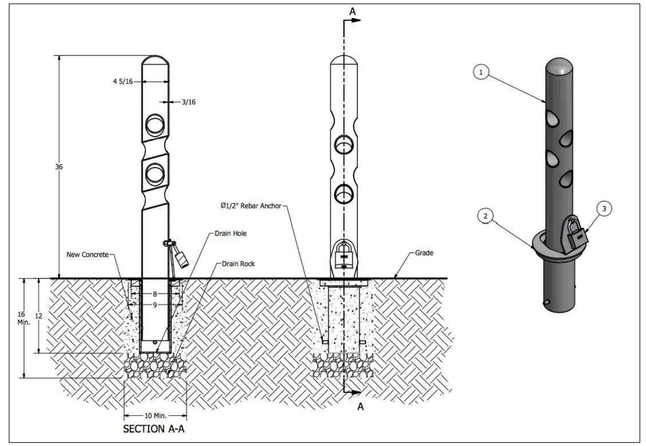
REINFORCED CONCRETE PAVEMENT	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 303.5.4	
JOINTS		DATE Mar. 2018	STANDARD DRAWING NO. R-2050



NOTES:

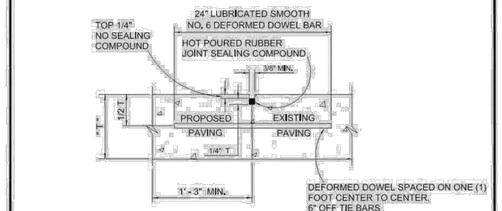
1. Street pavement cement content to be no less than 6 sacks per cubic yard for machine placed and not less than 6.5 sacks per cubic yard for hand placed.
2. Sidewalk Cement content of not less than 5.5 sack per cubic yard.
3. No sand allowed under pavement or sidewalks.

REINFORCED CONCRETE PAVEMENT	CITY OF ROCKWALL		
FIRE LANE		DATE AUG. '19	DRAWING NO. R-2041



REMOVABLE BOLLARD DETAIL

SEE SHEET ISR-1006-2

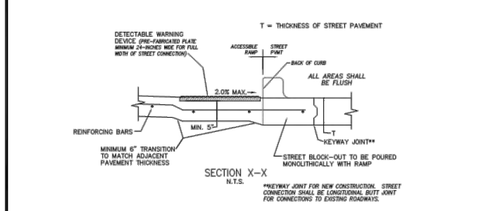


NOTES: T = PAVEMENT

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.

LONGITUDINAL BUTT JOINT
NOT TO SCALE

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



NOTE: ALL SIDEWALK CURB RAMPS WILL BE 3,600 PSI (6.5 SACK/CY) CONCRETE.

DIRECTIONAL CURB RAMP	CITY OF ROCKWALL		
		DATE MAR. '17	DRAWING NO. R-2125C

RECORD DRAWING

NOTE: THIS RECORD DRAWING IS A COMPILATION OF THE ORIGINAL SEALED ENGINEERING DRAWING FOR THIS PROJECT, INFORMATION FURNISHED BY THE CONTRACTOR, AND FIELD SURVEY VERIFICATION. TO THE BEST OF OUR KNOWLEDGE R-DELTA ENGINEERS, INC. STATES THAT THIS PLAN IS AS-BUILT.

03/16/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

"ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN."

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

RayburnElectric COOPERATIVE

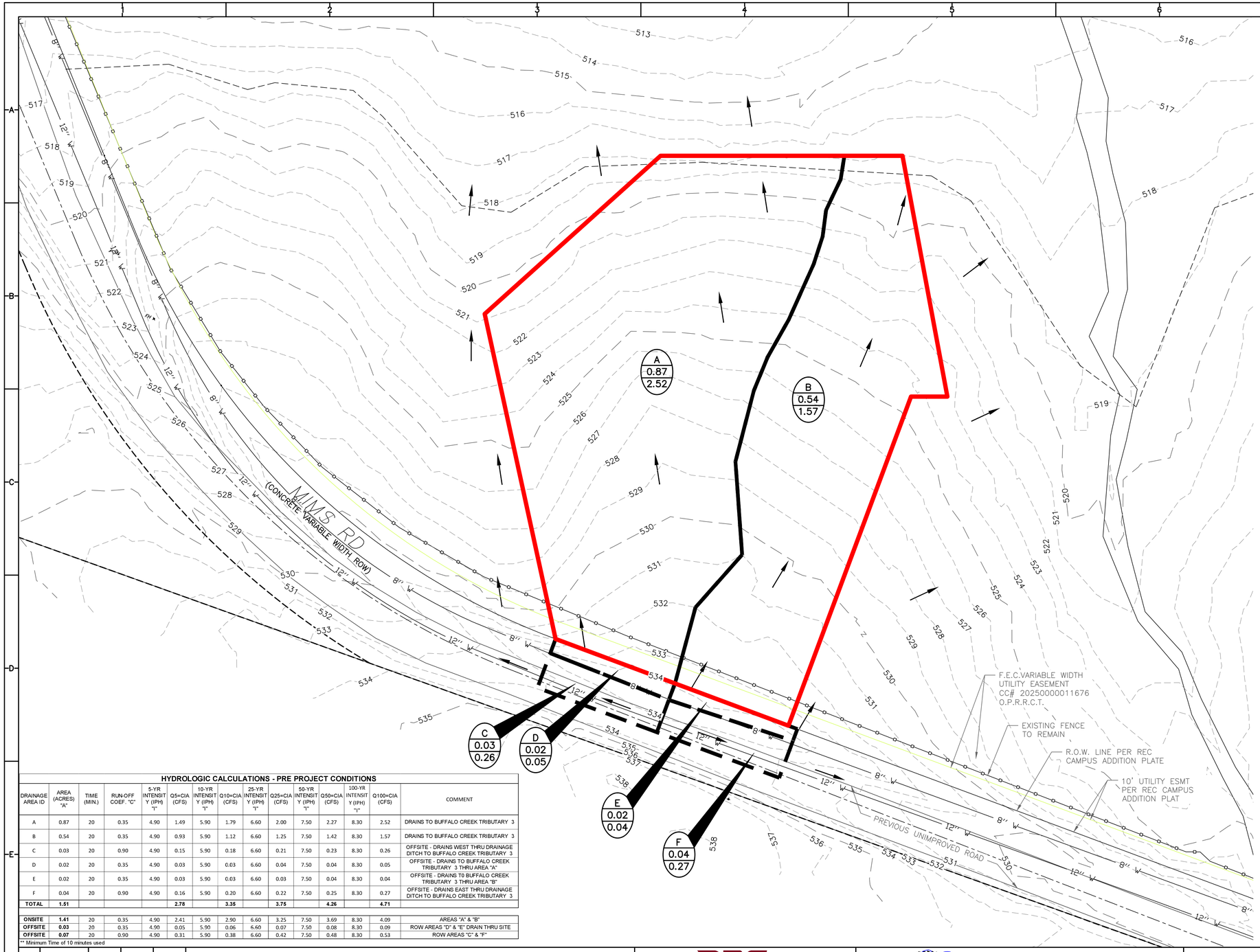
r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY FRANK A. POLMA, P.E. 80274 ON 8/04/2025. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

JOB NO. 3036-21	DESIGN BY JMJ		
CREATED	CODE		
PLOTTED 3/16/2026	CHECKED BY RDE		
LAST UPDATE BY			
DRAWN: JMJ	SCALE: NONE		
CHECKED:	DRAWING NO.: ISR-1006-3	ISSUE:	
APPROVED:			
FILENAME:			

REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032

PAVING DETAILS



N

30 20 10 0 30

SCALE: 1" = 30'

LEGEND

- DRAINAGE FLOW
- X / 0.05 / 0.17 — DRAINAGE AREA DESIGNATION; AREA (Acre); 100-YEAR RUNOFF (CFS)
- 550 — EXISTING SURFACE CONTOUR MAJOR
- 551 — EXISTING SURFACE CONTOUR MINOR

NOTES:

1. EXISTING SITE AND ADJACENT IMPROVEMENTS SHOWN FROM FIELD SURVEY BY R-DELTA ENGINEERS, INC. AND SUPPLEMENTED WITH LIDAR DATA.
2. DRAINAGE CALCULATIONS BASED RATIONAL METHOD.
3. ASSUMED RUNOFF COEFFICIENT FOR DEVELOPED PROPERTIES = 0.90 AND UNDEVELOPED PROPERTIES = 0.35 BASED ON CURRENT ZONING.

BENCHMARK:

CP8 – SPIKE IN POWER POLE AT NORTHWEST PROPERTY CORNER OF S.H. 205 & EAST CAMPUS DR.
N=7,015,703.47
E=2,599,978.77
ELEV.=543.67

THE COORDINATES AND BEARINGS SHOWN HEREON ARE TIED TO THE TEXAS COORDINATE SYSTEM OF 1983, NORTH CENTRAL ZONE (4202).

"ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN."

RECORD DRAWING

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03/16/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

NOTE:
CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (SHOWN ON PLANS OR NOT) PRIOR TO CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON PLANS, THE CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION. R-DELTA ENGINEERS, INC. WILL NOT BE RESPONSIBLE FOR ANY WORK BY THE CONTRACTOR NEGLECTING TO LOCATE THESE UTILITIES.

HYDROLOGIC CALCULATIONS - PRE PROJECT CONDITIONS

DRAINAGE AREA ID	AREA (ACRES) "A"	TIME (MIN.)	RUN-OFF COEF. "C"	5-YR INTENSITY (IPH) "I"	Q5=CIA (CFS)	10-YR INTENSITY (IPH) "I"	Q10=CIA (CFS)	25-YR INTENSITY (IPH) "I"	Q25=CIA (CFS)	50-YR INTENSITY (IPH) "I"	Q50=CIA (CFS)	100-YR INTENSITY (IPH) "I"	Q100=CIA (CFS)	COMMENT
A	0.87	20	0.35	4.90	1.49	5.90	1.79	6.60	2.00	7.50	2.27	8.30	2.52	DRAINS TO BUFFALO CREEK TRIBUTARY 3
B	0.54	20	0.35	4.90	0.93	5.90	1.12	6.60	1.25	7.50	1.42	8.30	1.57	DRAINS TO BUFFALO CREEK TRIBUTARY 3
C	0.03	20	0.90	4.90	0.15	5.90	0.18	6.60	0.21	7.50	0.23	8.30	0.26	OFFSITE - DRAINS WEST THRU DRAINAGE DITCH TO BUFFALO CREEK TRIBUTARY 3
D	0.02	20	0.35	4.90	0.03	5.90	0.03	6.60	0.04	7.50	0.04	8.30	0.05	OFFSITE - DRAINS TO BUFFALO CREEK TRIBUTARY 3 THRU AREA "A"
E	0.02	20	0.35	4.90	0.03	5.90	0.03	6.60	0.03	7.50	0.04	8.30	0.04	OFFSITE - DRAINS T0 BUFFALO CREEK TRIBUTARY 3 THRU AREA "B"
F	0.04	20	0.90	4.90	0.16	5.90	0.20	6.60	0.22	7.50	0.25	8.30	0.27	OFFSITE - DRAINS EAST THRU DRAINAGE DITCH TO BUFFALO CREEK TRIBUTARY 3
TOTAL	**1.51**				**2.78**		**3.35**		**3.75**		**4.26**		**4.71**	

ONSITE	**1.41**	20	0.35	4.90	2.41	5.90	2.90	6.60	3.25	7.50	3.69	8.30	4.09	AREAS "A" & "B"
OFFSITE	**0.03**	20	0.35	4.90	0.05	5.90	0.06	6.60	0.07	7.50	0.08	8.30	0.09	ROW AREAS "D" & "E" DRAIN THRU SITE
OFFSITE	**0.07**	20	0.90	4.90	0.31	5.90	0.38	6.60	0.42	7.50	0.48	8.30	0.53	ROW AREAS "C" & "F"

** Minimum Time of 10 minutes used

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

RayburnElectric COOPERATIVE

r.delta ENGINEERS
618 Main Street
Garland, TX 75040
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Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

STATE OF TEXAS — FRANK A. POLMA — 80274 — REGISTERED PROFESSIONAL ENGINEER

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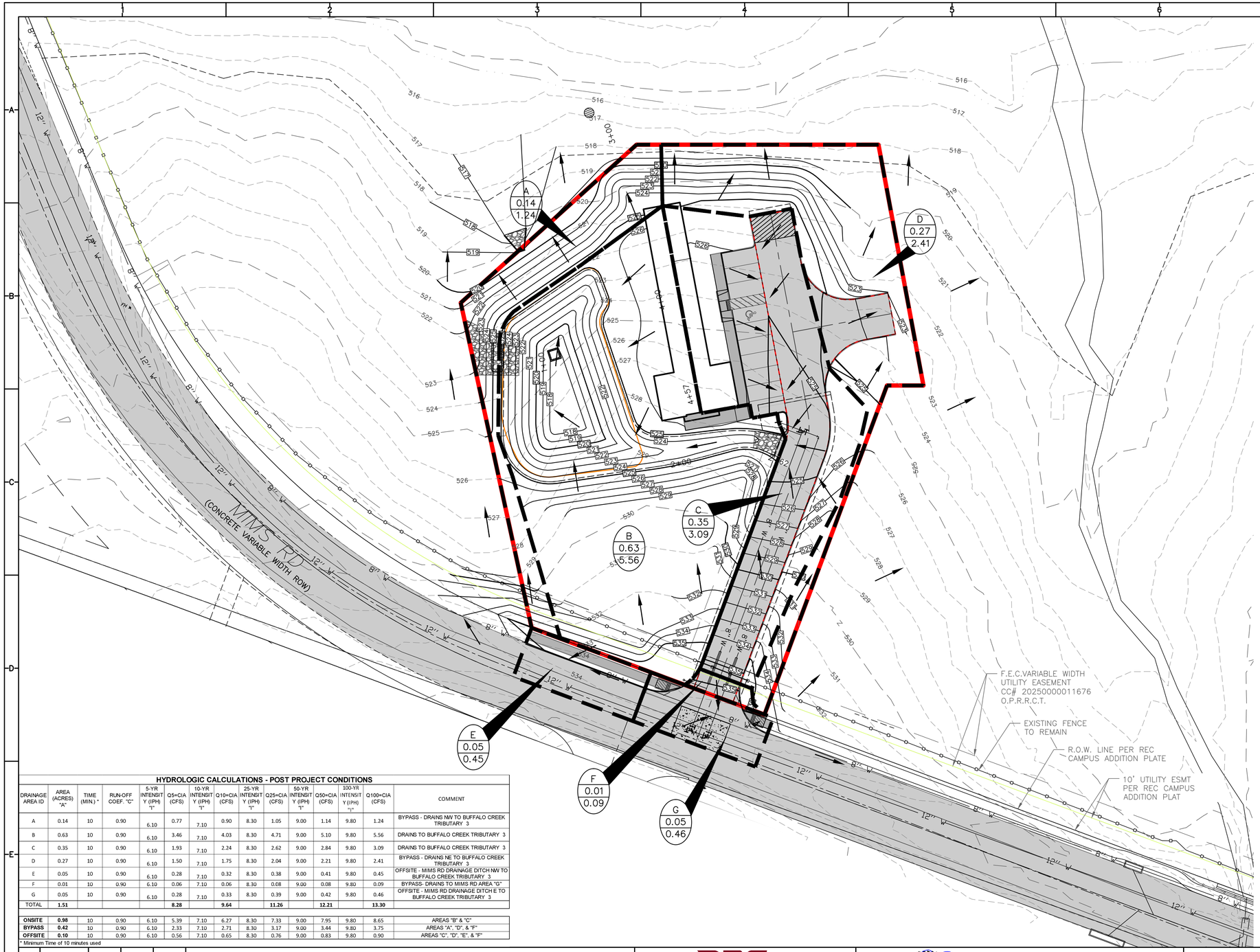
JOB NO. 3036-21	DESIGN BY JMJ
CREATED	CODE
PLOTTED 3/16/2026	CHECKED BY RDE
LAST UPDATE BY	
DRAWN: JMJ	SCALE: AS NOTED
CHECKED:	DRAWING NO.: ISR-1007-1
APPROVED:	ISSUE:
FILENAME:	

REC CAMPUS EXPANSION INDOOR SHOOTING RANGE

MIMS RD
ROCKWALL, TX 75032

PRE PROJECT DRAINAGE AREA MAP



N

30 20 10 0 30

SCALE: 1" = 30'

LEGEND

- DRAINAGE FLOW
- X / 0.05 / 0.17 — DRAINAGE AREA DESIGNATION; AREA (Acre); 100-YEAR RUNOFF (CFS)
- 550 — EXISTING SURFACE CONTOUR MAJOR
- 551 — EXISTING SURFACE CONTOUR MINOR
- 550 — PROPOSED SURFACE CONTOUR MAJOR
- 551 — PROPOSED SURFACE CONTOUR MINOR

NOTES:

1. EXISTING SITE AND ADJACENT IMPROVEMENTS SHOWN FROM FIELD SURVEY BY R-DELTA ENGINEERS, INC. AND SUPPLEMENTED WITH LIDAR DATA.
2. DRAINAGE CALCULATIONS BASED RATIONAL METHOD.
3. ASSUMED RUNOFF COEFFICIENT FOR DEVELOPED PROPERTIES = 0.90 AND UNDEVELOPED PROPERTIES = 0.35 BASED ON CURRENT ZONING.

BENCHMARK:

CP8 – SPIKE IN POWER POLE AT NORTHWEST PROPERTY CORNER OF S.H. 205 & EAST CAMPUS DR.
N=7,015,703.47
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ELEV.=543.67

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RECORD DRAWING

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03/16/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

NOTE:
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HYDROLOGIC CALCULATIONS - POST PROJECT CONDITIONS

DRAINAGE AREA ID	AREA (ACRES) "A"	TIME (MIN.) *	RUN-OFF COEF. "C"	5-YR INTENSITY (IPH) "I"	Q5=CIA (CFS)	10-YR INTENSITY (IPH) "I"	Q10=CIA (CFS)	25-YR INTENSITY (IPH) "I"	Q25=CIA (CFS)	50-YR INTENSITY (IPH) "I"	Q50=CIA (CFS)	100-YR INTENSITY (IPH) "I"	Q100=CIA (CFS)	COMMENT
A	0.14	10	0.90	6.10	0.77	7.10	0.90	8.30	1.05	9.00	1.14	9.80	1.24	BYPASS - DRAINS NW TO BUFFALO CREEK TRIBUTARY 3
B	0.63	10	0.90	6.10	3.46	7.10	4.03	8.30	4.71	9.00	5.10	9.80	5.56	DRAINS TO BUFFALO CREEK TRIBUTARY 3
C	0.35	10	0.90	6.10	1.93	7.10	2.24	8.30	2.62	9.00	2.84	9.80	3.09	DRAINS TO BUFFALO CREEK TRIBUTARY 3
D	0.27	10	0.90	6.10	1.50	7.10	1.75	8.30	2.04	9.00	2.21	9.80	2.41	BYPASS - DRAINS NE TO BUFFALO CREEK TRIBUTARY 3
E	0.05	10	0.90	6.10	0.28	7.10	0.32	8.30	0.38	9.00	0.41	9.80	0.45	OFFSITE - MIMS RD DRAINAGE DITCH NW TO BUFFALO CREEK TRIBUTARY 3
F	0.01	10	0.90	6.10	0.06	7.10	0.06	8.30	0.08	9.00	0.08	9.80	0.09	BYPASS- DRAINS TO MIMS RD AREA "G"
G	0.05	10	0.90	6.10	0.28	7.10	0.33	8.30	0.39	9.00	0.42	9.80	0.46	OFFSITE - MIMS RD DRAINAGE DITCH E TO BUFFALO CREEK TRIBUTARY 3
TOTAL	**1.51**				**8.28**		**9.64**		**11.26**		**12.21**		**13.30**	
ONSITE	**0.98**	10	0.90	6.10	5.39	7.10	6.27	8.30	7.33	9.00	7.95	9.80	8.65	AREAS "B" & "C"
BYPASS	**0.42**	10	0.90	6.10	2.33	7.10	2.71	8.30	3.17	9.00	3.44	9.80	3.75	AREAS "A", "D", & "F"
OFFSITE	**0.10**	10	0.90	6.10	0.56	7.10	0.65	8.30	0.76	9.00	0.83	9.80	0.90	AREAS "C", "D", "E", & "F"

* Minimum Time of 10 minutes used

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

RayburnElectric COOPERATIVE

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STATE OF TEXAS — FRANK A. POLMA — 80274 — REGISTERED PROFESSIONAL ENGINEER

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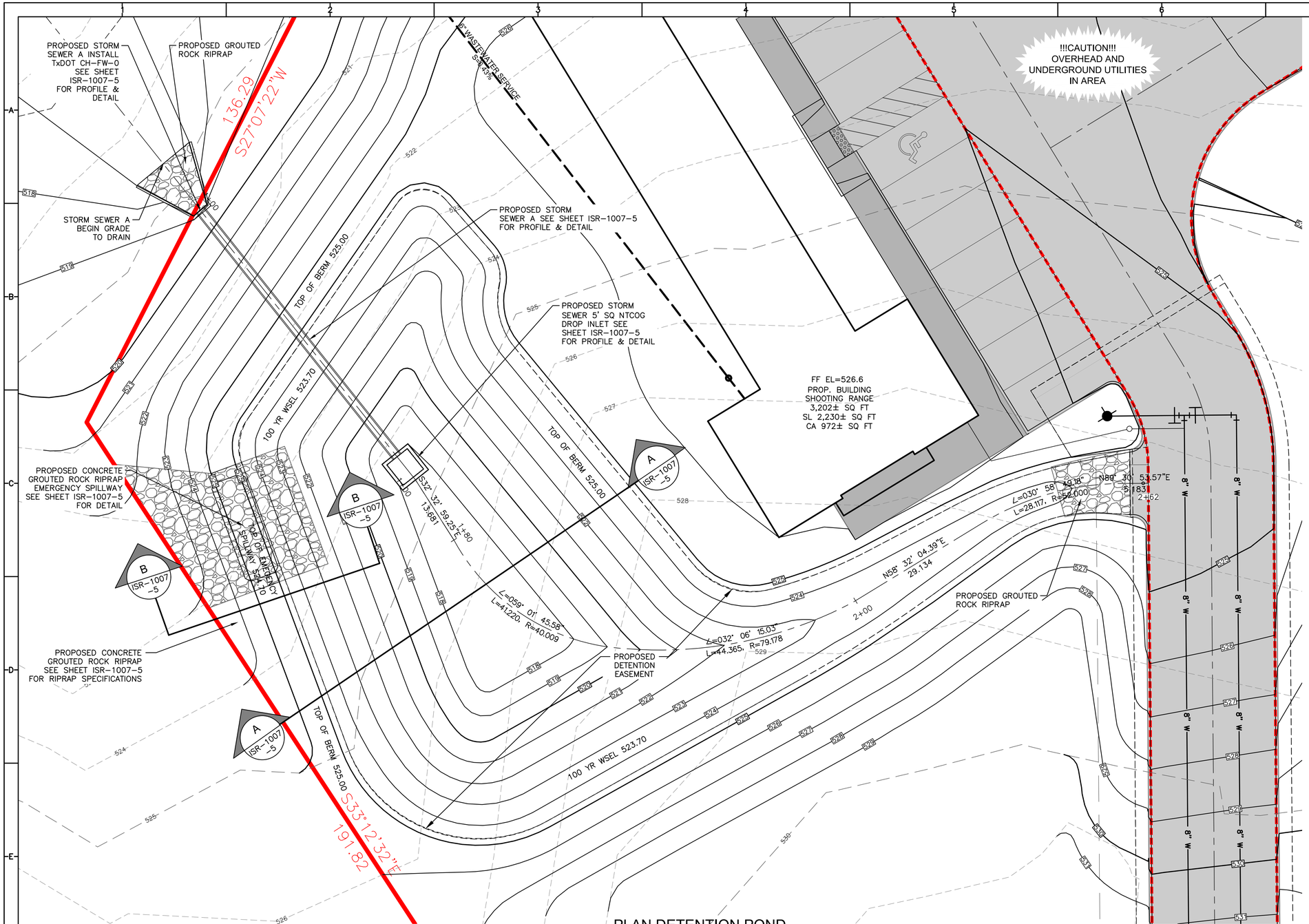
JOB NO. 3036-21	DESIGN BY JMJ		
CREATED	CODE		
PLOTTED 3/16/2026	CHECKED BY RDE		
LAST UPDATE BY			
DRAWN: JMJ	SCALE: AS NOTED		
CHECKED:	DRAWING NO.: **ISR-1007-2**	ISSUE:	
APPROVED:			
FILENAME:			

REC CAMPUS EXPANSION INDOOR SHOOTING RANGE

MIMS RD
ROCKWALL, TX 75032

POST PROJECT DRAINAGE AREA MAP



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LEGEND

- 480 — EXISTING SURFACE CONTOUR MAJOR
- 481 — EXISTING SURFACE CONTOUR MINOR
- 480 — PROPOSED SURFACE CONTOUR MAJOR
- 481 — PROPOSED SURFACE CONTOUR MINOR
- PROPOSED 4" REINFORCED CLASS "C" CONCRETE
- PROPOSED 6" REINFORCED CLASS "C" CONCRETE
- PROPOSED GROUTED ROCK RIPRAP SEE SHEET ISR-1007-5 FOR DETAILS
- MEG 480.50± — MATCH EXISTING GRADE ELEVATION (SEE ABBREVIATION LIST)
- TP 480.50 — PROPOSED SPOT ELEVATION (SEE ABBREVIATION LIST)

RECORD DRAWING

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03/16/2026
FRANK A. POLMA, P.E. TX #80274
R-DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

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PLAN DETENTION POND

SCALE: 1"=10'

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

Rayburn Electric Cooperative

r.delta ENGINEERS
618 Main Street
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JOB NO.	3036-21	DESIGN BY	JMJ
CREATED		CODE	
PLOTTED	3/16/2026	CHECKED BY	RDE
LAST UPDATE BY			
DRAWN:	JMJ	SCALE:	AS NOTED
CHECKED:		DRAWING NO.:	ISR-1007-3
APPROVED:		ISSUE:	
FILENAME:			

REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032

DETENTION POND LAYOUT

HYDROLOGIC CALCULATIONS - PRE PROJECT CONDITIONS

DRAINAGE AREA ID	AREA (ACRES) "A"	TIME (MIN.)	RUN-OFF COEF. "C"	5-YR INTENSIT Y (IPH) "I"	Q5=CIA (CFS)	10-YR INTENSIT Y (IPH) "I"	Q10=CIA (CFS)	25-YR INTENSIT Y (IPH) "I"	Q25=CIA (CFS)	50-YR INTENSIT Y (IPH) "I"	Q50=CIA (CFS)	100-YR INTENSIT Y (IPH) "I"	Q100=CIA (CFS)	COMMENT
A	0.87	20	0.35	4.90	1.49	5.90	1.79	6.60	2.00	7.50	2.27	8.30	2.52	DRAINS TO BUFFALO CREEK TRIBUTARY 3
B	0.54	20	0.35	4.90	0.93	5.90	1.12	6.60	1.25	7.50	1.42	8.30	1.57	DRAINS TO BUFFALO CREEK TRIBUTARY 3
C	0.03	20	0.90	4.90	0.15	5.90	0.18	6.60	0.21	7.50	0.23	8.30	0.26	OFFSITE - DRAINS WEST THRU DRAINAGE DITCH TO BUFFALO CREEK TRIBUTARY 3
D	0.02	20	0.35	4.90	0.03	5.90	0.03	6.60	0.04	7.50	0.04	8.30	0.05	OFFSITE - DRAINS TO BUFFALO CREEK TRIBUTARY 3 THRU AREA "A"
E	0.02	20	0.35	4.90	0.03	5.90	0.03	6.60	0.03	7.50	0.04	8.30	0.04	OFFSITE - DRAINS TO BUFFALO CREEK TRIBUTARY 3 THRU AREA "B"
F	0.04	20	0.90	4.90	0.16	5.90	0.20	6.60	0.22	7.50	0.25	8.30	0.27	OFFSITE - DRAINS EAST THRU DRAINAGE DITCH TO BUFFALO CREEK TRIBUTARY 3
TOTAL	**1.51**				**2.78**		**3.35**		**3.75**		**4.26**		**4.71**	

ONSITE	**1.41**	20	0.35	4.90	2.41	5.90	2.90	6.60	3.25	7.50	3.69	8.30	4.09	AREAS "A" & "B"
OFFSITE	**0.03**	20	0.35	4.90	0.05	5.90	0.06	6.60	0.07	7.50	0.08	8.30	0.09	ROW AREAS "D" & "E" DRAIN THRU SITE
OFFSITE	**0.07**	20	0.90	4.90	0.31	5.90	0.38	6.60	0.42	7.50	0.48	8.30	0.53	ROW AREAS "C" & "F"

** Minimum Time of 10 minutes used

HYDROLOGIC CALCULATIONS - POST PROJECT CONDITIONS

DRAINAGE AREA ID	AREA (ACRES) "A"	TIME (MIN.) *	RUN-OFF COEF. "C"	5-YR INTENSIT Y (IPH) "I"	Q5=CIA (CFS)	10-YR INTENSIT Y (IPH) "I"	Q10=CIA (CFS)	25-YR INTENSIT Y (IPH) "I"	Q25=CIA (CFS)	50-YR INTENSIT Y (IPH) "I"	Q50=CIA (CFS)	100-YR INTENSIT Y (IPH) "I"	Q100=CIA (CFS)	COMMENT
A	0.14	10	0.90	6.10	0.77	7.10	0.90	8.30	1.05	9.00	1.14	9.80	1.24	BYPASS - DRAINS NW TO BUFFALO CREEK TRIBUTARY 3
B	0.63	10	0.90	6.10	3.46	7.10	4.03	8.30	4.71	9.00	5.10	9.80	5.56	DRAINS TO BUFFALO CREEK TRIBUTARY 3
C	0.35	10	0.90	6.10	1.93	7.10	2.24	8.30	2.62	9.00	2.84	9.80	3.09	DRAINS TO BUFFALO CREEK TRIBUTARY 3
D	0.27	10	0.90	6.10	1.50	7.10	1.75	8.30	2.04	9.00	2.21	9.80	2.41	BYPASS - DRAINS NE TO BUFFALO CREEK TRIBUTARY 3
E	0.05	10	0.90	6.10	0.28	7.10	0.32	8.30	0.38	9.00	0.41	9.80	0.45	OFFSITE - MIMS RD DRAINAGE DITCH NW TO BUFFALO CREEK TRIBUTARY 3
F	0.01	10	0.90	6.10	0.06	7.10	0.06	8.30	0.08	9.00	0.08	9.80	0.09	BYPASS- DRAINS TO MIMS RD AREA "G"
G	0.05	10	0.90	6.10	0.28	7.10	0.33	8.30	0.39	9.00	0.42	9.80	0.46	OFFSITE - MIMS RD DRAINAGE DITCH E TO BUFFALO CREEK TRIBUTARY 3
TOTAL	**1.51**				**8.28**		**9.64**		**11.26**		**12.21**		**13.30**	

ONSITE	**0.98**	10	0.90	6.10	5.39	7.10	6.27	8.30	7.33	9.00	7.95	9.80	8.65	AREAS "B" & "C"
BYPASS	**0.42**	10	0.90	6.10	2.33	7.10	2.71	8.30	3.17	9.00	3.44	9.80	3.75	AREAS "A", "D", & "F"
OFFSITE	**0.10**	10	0.90	6.10	0.56	7.10	0.65	8.30	0.76	9.00	0.83	9.80	0.90	AREAS "C", "D", "E", & "F"

* Minimum Time of 10 minutes used

PRE DEVELOPMENT CONDITION

ISR Detention Pond

Area	Acres		Q5(CFS)	Q10(CFS	Q25(CFS)	Q50CFS)	Q100(CFS)
A	0.87		1.49	1.79	2.00	2.27	2.52
B	0.54		0.93	1.12	1.25	1.42	1.57
C	0.03	ROW, bypass	0.15	0.18	0.21	0.23	0.26
D	0.02		0.03	0.03	0.04	0.04	0.05
E	0.02		0.03	0.03	0.03	0.04	0.04
F	0.04	ROW, bypass	0.16	0.20	0.22	0.25	0.27
Total	**1.51**		**2.78**	**3.35**	**3.75**	**4.26**	**4.71**
Q(CFS) THRU SITE			2.47	2.97	3.32	3.77	4.18
Q(CFS)Pre Toward Pond			1.68	2.02	2.26	2.57	2.85
Q(CFS) Offsite Area			0.78	0.95	1.06	1.20	1.33
Q(CFS) ROW BYPASS			0.31	0.38	0.42	0.48	0.53

POST DEVELOPMENT CONDITION

ISR Detention Pond

Area	Acres		Q5(CFS)	Q10(CFS	Q25(CFS)	Q50CFS)	Q100(CFS)
A	0.14	Site bypass	0.77	0.90	1.05	1.14	1.24
B	0.63	location of det pond	3.46	4.03	4.71	5.10	5.56
C	0.35	Roadway and Parking Lot	1.93	2.24	2.62	2.84	3.09
D	0.27	Site bypass	1.50	1.75	2.04	2.21	2.41
E	0.05	ROW, bypass	0.28	0.32	0.38	0.41	0.45
F	0.01	Site bypass	0.06	0.06	0.08	0.08	0.09
G	0.05	ROW, bypass	0.28	0.33	0.39	0.42	0.46
Total	**1.51**		**8.28**	**9.64**	**11.26**	**12.21**	**13.30**
Q(CFS) to Pond			5.39	6.27	7.33	7.95	8.65
Q(CFS) to ROW Bypass			0.62	0.72	0.84	0.91	0.99
Q(CFS) Offsite Bypass			2.28	2.65	3.10	3.36	3.66

SITE DISCHARGE SUMMARY

2 YR ALLOWABLE SITE DISCHARGE	1.68 cfs
2 YR ACTUAL SITE DISCHARGE	0.47 cfs
10 YR ALLOWABLE SITE DISCHARGE	2.02 cfs
10 YR ACTUAL SITE DISCHARGE	0.68 cfs
25 YR ALLOWABLE SITE DISCHARGE	2.26 cfs
25 YR ACTUAL SITE DISCHARGE	0.18 cfs
50 YR ALLOWABLE SITE DISCHARGE	2.57 cfs
50 YR ACTUAL SITE DISCHARGE	0.74 cfs
100 YR ALLOWABLE SITE DISCHARGE	2.85 cfs
100 YR ACTUAL SITE DISCHARGE	0.80 cfs

Storm	Net Site Discharge Change (cfs)	Pre Off Pond Discharge (cfs)	Postdev Off Pond Discharge (cfs)	Net Off Pond Discharge Change (cfs)	Net Local Watershed Discharge Change (cfs)
2	-1.57	0.78	2.28	1.49	-0.08
10	-1.84	0.95	2.65	1.70	-0.14
25	-2.07	1.06	3.10	2.04	-0.03
50	-2.36	1.20	3.36	2.16	-0.21
100	-2.60	1.33	3.66	2.33	-0.28

"ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN."

EX DETENTION POND 1 CALCULATIONS - 5 YR

Step 1 Present Conditions

Q = C * I * A

C 0.35 dimensionless
tc 20.00 mins
i 4.90 in/hr
A 0.98 acres

Q5 = 1.68 cfs

Step 2 Future Conditions

C 0.9 dimensionless
tc 10.00 mins
i 6.1 in/hr

A 0.98 acres

Q5 = 5.39 cfs

Check various duration storms

tdur(mins)	C	i (in/hr)	Area (acres)	Q (cfs)
15	0.9	5.5	0.98	4.86
20	0.9	4.9	0.98	4.33
30	0.9	4.1	0.98	3.62
40	0.9	3.4	0.98	3.00
50	0.9	2.8	0.98	2.47
60	0.9	2.6	0.98	2.30
70	0.9	2.4	0.98	2.12
80	0.9	2.3	0.98	2.03
90	0.9	2.1	0.98	1.85
100	0.9	1.9	0.98	1.68
110	0.9	1.8	0.98	1.59

Required storage Volumes

tdur (mins)	Inflow		Outflow		Req Storage Volume (cf)
	Q (cfs)	Volume (cf)	Q (cfs)	Volume (cf)	
10	5.39	3,231.18	0.11	66.00	3,165.18
15	4.86	4,370.04	0.11	82.50	4,287.54
20	4.33	5,191.08	0.11	99.00	5,092.08
30	3.62	6,515.34	0.11	132.00	6,383.34
40	3.00	7,203.95	0.11	165.00	7,038.95
50	2.47	7,415.83	0.11	198.00	7,217.83
60	2.30	8,263.35	0.11	231.00	8,032.35
70	2.12	8,899.00	0.11	264.00	8,635.00
80	2.03	9,746.52	0.11	297.00	9,449.52
90	1.85	10,011.37	0.11	330.00	9,681.37
100	1.68	10,064.34	0.11	363.00	9,701.34
110	**1.59**	**10,488.10**	**0.11**	**396.00**	**10,092.10**

Maximum Volume Required is 10,092.10 cf at the 110 min duration

Contour Elevation	Surface Area (sf)	Average Area (sf)	Cumulative Volume (sf)
517.00	0.00		
		329.47	329.47
518.00	658.95		
		943.88	1,273.35
519.00	1228.81		
		1,581.23	2,854.59
520.00	1,933.66		
		2,355.87	5,210.46
521.00	2,778.08		
		3,285.61	8,496.06
522.00	3,793.13		
		4,422.90	12,918.97
523.00	5,052.68		
		5,911.59	18,830.55
524.00	6,770.50		
		7,776.18	24,273.88
524.70	8,781.87		

Invert Elevation	517.50	feet
Top of BERM Elev	525.00	feet
OFW Elev	524.70	feet
Freeboard	2.64	feet

Outfall Structures

Outlet Structure Calculations

Orifice Calculations:

Q = Cd x A x sqrt (2 x g x H)
C 0.6 dimensionless
5-yr WSE 522.36 feet

Width of Orifice (ft)	Ht of Orifice (ft)	Orifice Center Elev (ft)	Area of Orifice (ft2)	Head Above Center of Orifice (ft)	Q (cfs)
0.083	0.083	517.56	0.007	4.80	0.073
0.083	0.083	521.00	0.007	1.36	0.039
0.125	0.125	522.20	0.016	0.00	0.00
0.255	0.250	523.00	0.064	0.00	0.00
				TOTAL (cfs)	**0.11**

Reqd 5 Yr Storage Volume = 10,092.10 CF

5 Yr WSE 522.36 feet

top of spillway 524.70 feet

top of berm 525.00 feet

EX DETENTION POND 1 CALCULATIONS - 10 YR

Step 1 Present Conditions

Q = C * I * A

C 0.35 dimensionless
tc 20.00 mins
i 5.90 in/hr
A 0.98 acres

Q10 = 2.03 cfs

Step 2 Future Conditions

C 0.9 dimensionless
tc 10.00 mins
i 7.1 in/hr

A 0.98 acres

Q10 = 6.27 cfs

Check various duration storms

tdur(mins)	C	i (in/hr)	Area (acres)	Q (cfs)
15	0.9	6.5	0.98	5.74
20	0.9	5.9	0.98	5.21
30	0.9	4.8	0.98	4.24
40	0.9	4	0.98	3.53
50	0.9	3.5	0.98	3.09
60	0.9	3	0.98	2.65
70	0.9	2.8	0.98	2.47
80	0.9	2.6	0.98	2.30
90	0.9	2.5	0.98	2.21
100	0.9	2.4	0.98	2.12
110	0.9	2.3	0.98	2.03

Required storage Volumes

tdur (mins)	Inflow		Outflow		Req Storage Volume (cf)
	Q (cfs)	Volume (cf)	Q (cfs)	Volume (cf)	
10	6.27	3,760.89	0.20	120.00	3,640.89
15	5.74	5,164.60	0.20	150.00	5,014.60
20	5.21	6,250.49	0.20	180.00	6,070.49
30	4.24	7,627.71	0.20	240.00	7,387.71
40	3.53	8,475.23	0.20	300.00	8,175.23
50	3.09	9,269.79	0.20	360.00	8,909.79
60	2.65	9,534.64	0.20	420.00	9,114.64
70	2.47	10,382.16	0.20	480.00	9,902.16
80	2.30	11,017.81	0.20	540.00	10,477.81
90	2.21	11,918.30	0.20	600.00	11,318.30
100	2.12	12,712.85	0.20	660.00	12,052.85
110	**2.03**	**13,401.47**	**0.20**	**720.00**	**12,681.47**

Maximum Volume Required is 12,681.47 cf at the 110 min duration

Detention Pond Volume Calculations

Contour Elevation	Surface Area (sf)	Average Area	Cumulative Volume (sf)
517.00	0.00		
		329.47	329.47
518.00	658.95		
		943.88	1,273.35
519.00	1228.81		
		1,581.23	2,854.59
520.00	1,933.66		
		2,355.87	5,210.46
521.00	2,778.08		
		3,285.61	8,496.06
522.00	3,793.13		
		4,422.90	12,918.97
523.00	5,052.68		
		5,911.59	18,830.55
524.00	6,770.50		
		7,776.18	24,273.88
524.70	8,781.87		

Reqd 10 Yr Storage Volume = 12,681.47 CF

10 Yr WSE 522.96 feet

top of spillway 524.70 feet

top of berm 525.00 feet

Invert Elevation	517.50	feet
Top of BERM Elev	525.00	feet
OFW Elev	524.70	feet
Freeboard	2.04	feet

Outlet Structure Calculations

Orifice Calculations:

Q = Cd x A x sqrt (2 x g x H)
C 0.6 dimensionless
10-yr WSE 522.96 feet

Width of Orifice (ft)	Ht of Orifice (ft)	Orifice Center Elev (ft)	Area of Orifice (ft2)	Head Above Center of Orifice (ft)	Q (cfs)
0.083	0.083	517.56	0.006889	5.397	0.077
0.083	0.083	521.00	0.006889	1.960	0.046
0.120	0.120	522.00	0.0144	0.960	0.068
0.250	0.250	523.00	0.0625	0.000	0.000
				TOTAL (cfs)	0.19

EX DETENTION POND 1 CALCULATIONS - 50 YR

Step 1 Present Conditions

Q = C * I * A

C 0.35 dimensionless

tc 20.00 mins
i 7.50 in/hr

A 0.98 acres

Q100 = 2.57 cfs

Step 2 Future Conditions

C 0.9 dimensionless
tc 10.00 mins
i 9.0 in/hr

A 0.98 acres

Q100 = 7.95 cfs

Check various duration storms

tdur(mins)	C	i (in/hr)	Area (acres)	Q (cfs)
15	0.9	8.1	0.98	7.15
20	0.9	7.5	0.98	6.62
30	0.9	6.1	0.98	5.39
40	0.9	5.2	0.98	4.59
50	0.9	4.5	0.98	3.97
60	0.9	3.9	0.98	3.44
70	0.9	3.7	0.98	3.27
80	0.9	3.5	0.98	3.09
90	0.9	3.3	0.98	2.91
100	0.9	3.0	0.98	2.65
110	0.9	2.9	0.98	2.56

Required storage Volumes

tdur (mins)	Inflow		Outflow		Req Storage Volume (cf)
	Q (cfs)	Volume (cf)	Q (cfs)	Volume (cf)	
10	7.95	4,767.32	0.40	240.00	4,527.32
15	7.15	6,435.88	0.40	300.00	6,135.88
20	6.62	7,945.53	0.40	360.00	7,585.53
30	5.39	9,693.55	0.40	480.00	9,213.55
40	4.59	11,017.81	0.40	600.00	10,417.81
50	3.97	11,918.30	0.40	720.00	11,198.30
60	3.44	12,395.03	0.40	840.00	11,555.03
70	3.27	13,719.29	0.40	960.00	12,759.29
80	3.09	14,831.66	0.40	1,080.00	13,751.66
90	2.91	15,732.15	0.40	1,200.00	14,532.15
100	2.65	15,891.07	0.40	1,320.00	14,571.07
110	**2.56**	**16,897.50**	**0.40**	1,440.00	15,457.50

Maximum Volume Required is 15,457.50 cf at the 110 min duration

Detention Pond Volume Calculations

Contour Elevation	Surface Area (sf)	Average Area	Cumulative Volume (sf)
517.00	0.00		
		329.47	263.58
518.00	658.95		
		943.88	1,207.46
519.00	1228.81		
		1,581.23	2,788.69
520.00	1,933.66		
		2,355.87	5,144.56
521.00	2,778.08		
		3,285.61	8,430.17
522.00	3,793.13		
		4,422.90	12,853.07
523.00	5,052.68		
		5,911.59	18,764.66
524.00	6,770.50		
		7,776.18	24,207.99
524.70	8,781.87		

Invert Elevation	517.50	feet
Top of BERM Elev	525.00	feet
OFW Elev	524.70	feet
Freeboard	1.56	feet

Outfall Structures

Outlet Structure Calculations

Orifice Calculations:

Q = Cd x A x sqrt (2 x g x H)
C 0.6 dimensionless
50-yr WSE 523.44 feet

Rectangular Orifice Design

Width of Orifice (ft)	Ht of Orifice (ft)	Orifice Center Elev (ft)	Area of Orifice (ft2)	Head Above Center of Orifice (ft)	Q (cfs)
0.083	0.083	517.56	0.007	5.88	0.08
0.083	0.083	521.20	0.007	2.24	0.05
0.125	0.125	522.20	0.016	1.24	0.08
0.250	0.250	523.00	0.063	0.44	0.20
				TOTAL (cfs)	0.41

Reqd 50 Yr Storage Volume = 15,457.50 CF

50 Yr WSE 523.44 feet

top of spillway 524.70 feet

top of berm 525.00 feet

EX DETENTION POND 1 CALCULATIONS - 100 YR

Step 1 Present Conditions

Q = C * I * A

C 0.35 dimensionless

tc 20.00 mins
i 8.30 in/hr

A 0.98 acres

Q100 = 2.85 cfs

Step 2 Future Conditions

C 0.9 dimensionless
tc 10.00 mins
i 9.8 in/hr

A 0.98 acres

Q100 = 8.65 cfs

Check various duration storms

tdur(mins)	C	i (in/hr)	Area (acres)	Q (cfs)
15	0.9	9	0.98	7.95
20	0.9	8.3	0.98	7.33
30	0.9	6.9	0.98	6.09
40	0.9	5.8	0.98	5.12
50	0.9	5.0	0.98	4.41
60	0.9	4.5	0.98	3.97
70	0.9	4.0	0.98	3.53
80	0.9	3.7	0.98	3.27
90	0.9	3.5	0.98	3.09
100	0.9	3.4	0.98	3.00
110	0.9	3.2	0.98	2.83

Required storage Volumes

tdur (mins)	Inflow		Outflow		Req Storage Volume (cf)
	Q (cfs)	Volume (cf)	Q (cfs)	Volume (cf)	
10	8.65	5,191.08	0.48	288.00	4,903.08
15	7.95	7,150.98	0.48	360.00	6,790.98
20	7.33	8,793.06	0.48	432.00	8,361.06
30	6.09	10,964.84	0.48	576.00	10,388.84
40	5.12	12,289.09	0.48	720.00	11,569.09
50	4.41	13,242.55	0.48	864.00	12,378.55
60	3.97	14,301.96	0.48	1,008.00	13,293.96
70	3.53	14,831.66	0.48	1,152.00	13,679.66
80	3.27	15,679.18	0.48	1,296.00	14,383.18
90	3.09	16,685.62	0.48	1,440.00	15,245.62
100	3.00	18,009.87	0.48	1,584.00	16,425.87
110	**2.83**	**18,645.52**	**0.48**	**1,728.00**	**16,917.52**

Maximum Volume Required is 16,917.52 cf at the 110 min duration

Detention Pond Volume Calculations

Contour Elevation	Surface Area (sf)	Average Area	Cumulative Volume (sf)
517.50	0.00		
		329.47	164.74
518.00	658.95		
		943.88	1,108.62
519.00	1228.81		
		1,581.23	2,689.85
520.00	1,933.66		
		2,355.87	5,045.72
521.00	2,778.08		
		3,285.61	8,331.32
522.00	3,793.13		
		4,422.90	12,754.23
523.00	5,052.68		
		5,911.59	18,665.81
524.00	6,770.50		
		7,776.18	24,109.14
524.70	8,781.87		

Reqd 100 Yr Storage Volume = 16,917.52 CF

8.65 100 Yr WSE 523.70 feet

top of spillway 524.70 feet

top of berm 525.00 feet

Invert Elevation	517.50	feet
Top of BERM Ele	525.00	feet
OFW Ele	524.70	feet
Freeboard	1.00	feet

Outfall Structures

Outlet Structure Calculations

Orifice Calculations:

Q = Cd x A x sqrt (2 x g x H)
C 0.6 dimensionless
100-yr WSE 523.70 feet

Rectangular Orifice Design

Width of Orifice (ft)	Ht of Orifice (ft)	Orifice Center Elev (ft)	Area of Orifice (ft2)	Head Above Center of Orifice (ft)	Q (cfs)
0.083	0.083	517.56	0.007	6.20	0.08
0.083	0.083	521.10	0.007	2.60	0.05
0.125	0.125	522.20	0.016	1.50	0.09
0.250	0.250	523.00	0.063	0.70	0.25
				TOTAL (cfs)	0.48

RECORD DRAWING

NOTE: THIS RECORD DRAWING IS A COMPILATION OF THE ORIGINAL SEALED ENGINEERING DRAWING FOR THIS PROJECT, INFORMATION FURNISHED BY THE CONTRACTOR, AND FIELD SURVEY VERIFICATION. TO THE BEST OF OUR KNOWLEDGE R-DELTA ENGINEERS, INC. STATES THAT THIS PLAN IS AS-BUILT.

03/16/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

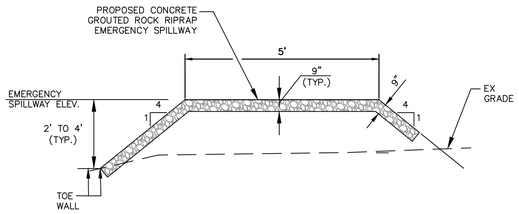
RayburnElectric COOPERATIVE
r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

STATE OF TEXAS
FRANK A. POLMA
80274
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY FRANK A. POLMA, P.E. 80274 ON 8/04/2025. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

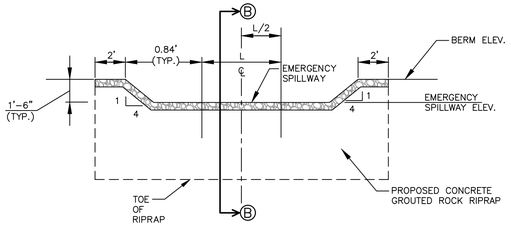
JOB NO.	3036-21
DESIGN BY	JMJ
CREATED	
CODE	
PLOTTED	3/16/2026
CHECKED BY	RDE
LAST UPDATE BY	
DRAWN:	JMJ
SCALE:	AS NOTED
CHECKED:	
APPROVED:	
FILENAME:	
DRAWING NO.:	ISR-1007-4
ISSUE:	

REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032
DETENTION POND CALCULATIONS



SECTION B-B THROUGH EMERGENCY SPILLWAY

SCALE: N.T.S

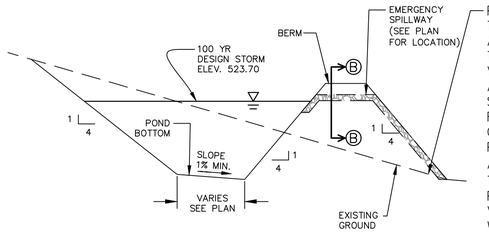


EMERGENCY SPILLWAY DETAILS

SCALE: N.T.S

L	EM. SPILLWAY ELEV.	BERM ELEV.
20'	524.70	525.00

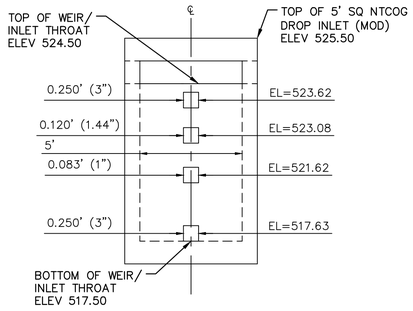
CAPACITY OF OVERFLOW WEIR
= C x L x H^(3/2)
=3.33 x 17' x 0.3^(3/2)
=10.94 CFS > 100-YR POST DEVELOPMENT FLOW RATE OF 8.65 CFS INTO POND (SEE SHEET ISR-1007-2)



SECTION A-A THROUGH DETENTION POND

SCALE: N.T.S

PREPARE SUBGRADE FOR THE POND EMBANKMENT PER ADDENDUM 2 TO THE PROJECT GEOTECHNICAL REPORT DATED JANUARY 24, 2023 AND RESTATED BELOW FOR CONVENIENCE. THE SUBGRADE IN AREAS TO BE FILLED FOR THE EMBANKMENT SHOULD BE STRIPPED OF VEGETATION, MAJOR ROOT SYSTEMS, SOFT OR YIELDING MATERIALS, AND ANY DEBRIS PRESENT. THE SOFT OR YIELDING MATERIALS SHOULD BE EXCAVATED TO FIRM GROUND. PRIOR TO EMBANKMENT FILL PLACEMENT, THE SUBGRADES SHOULD BE EVALUATED BY A QUALIFIED TECHNICIAN. THE EXPOSED SUBGRADE SHOULD BE PROOFROLLED WITH CONSTRUCTION EQUIPMENT HAVING A MINIMUM AXLE LOAD OF 10 TONS [E.G., FULLY LOADED TANDEM-AXLE DUMP TRUCK]. PROOFROLLING SHOULD BE TRAVERSED IN TWO PERPENDICULAR DIRECTIONS WITH OVERLAPPING PASSES OF THE VEHICLE UNDER THE OBSERVATION OF A QUALIFIED TECHNICIAN. WHERE PROOFROLLING IDENTIFIES AREAS THAT ARE YIELDING OR PUMPING SHOULD BE REPAIRED PRIOR TO THE PLACEMENT OF SUBSEQUENT FILL. STRIPPED SURFACES SHOULD BE SCARIFIED AND COMPACTED PRIOR TO THE PLACEMENT OF THE FILLS TO PROVIDE A GOOD CONTACT BETWEEN THE EXISTING SOILS AND FILLS. BENCHING OF EXISTING SLOPES STEEPER THAN ABOUT 6 HORIZONTAL TO 1 VERTICAL MAY BE NECESSARY SO THAT RELATIVELY HORIZONTAL LIFTS CAN BE PLACED, AND GOOD CONTACT IS MADE BETWEEN THE NATURAL SOILS AND FILLS. THE ON-SITE SOILS CAN BE USED AS FILL MATERIALS. IMPORTED EMBANKMENT FILL SHOULD HAVE A PLASTICITY INDEX LESS THAN 40. THEY SHOULD BE FREE OF VEGETATION, MAJOR ROOTS, DEBRIS, AND ROCK GREATER THAN 4 INCHES IN MAXIMUM DIMENSION. THE FILL MATERIALS SHOULD BE SPREAD IN LOOSE RELATIVELY HORIZONTAL LIFTS, LESS THAN 8 INCHES THICK, AND UNIFORMLY COMPACTED TO A MINIMUM OF 95 PERCENT OF ASTM D698 AT A MINIMUM OF 2 PERCENTAGE POINTS OR ABOVE THE SOIL'S OPTIMUM MOISTURE CONTENT AS DETERMINED BY THAT TEST. FIELD DENSITY AND MOISTURE TESTS SHOULD BE PERFORMED ON EACH LIFT AS NECESSARY TO VERIFY THAT ADEQUATE COMPACTION IS ACHIEVED. SURFACES TO RECEIVE FILLS SHOULD BE ROUGHENED IN ORDER TO HAVE A GOOD BOND BETWEEN EACH LAYER OF COMPACTED SOIL. SUCCEEDING LIFTS OF SOILS SHOULD BE PLACED IN AN EXPEDITIOUS MANNER TO PREVENT DRYING OF THE ALREADY PLACED SOILS. IF SIGNIFICANT DRYING DOES OCCUR, IT WILL BE NECESSARY TO SCARIFY, WET AND RECOMPACT THE SURFACE PRIOR TO PLACING A SUCCEEDING LIFT. EMBANKMENT FILLS SHOULD BE CONSTRUCTED BEYOND FINISHED SLOPE SURFACES AND CUT BACK TO THE DESIGN SLOPE. NO FILL SHOULD BE PLACED PARALLEL TO A SLOPE.

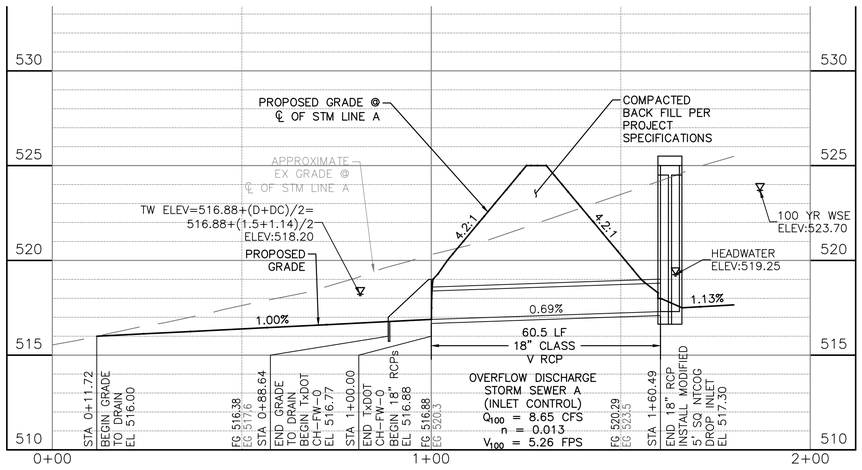


ELEVATION - DETENTION POND DROP INLET

SCALE: N.T.S

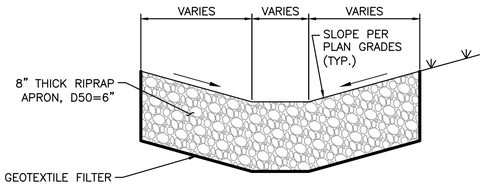
NOTES:

1. SEE SHEET ISR-1004-1 FOR LEGEND, PROJECT CONTROL, AND PROJECT NOTES.
2. CONTRACTOR SHALL CONSTRUCT DETENTION POND TO PROVIDE AT LEAST THE AVERAGE END AREA TOTAL VOLUMES SHOWN FOR EACH ELEVATION IN THE DETENTION POND VOLUME CALCULATIONS TABLE ON THIS SHEET AFTER SOD PLACEMENT. SEE SHEET ISR-1009-3 FOR SOD LIMITS.
3. SEE SHEET ISR-1007-4 FOR DETENTION POND CALCULATIONS.



PROFILE STORM SEWER A

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE 1"=4'



NOTE:
STONE RIPRAP SHALL BE DURABLE NATURAL STONE WITH A MINIMUM BULK SPECIFIC GRAVITY OF 2.50 AS DETERMINED BY TxDOT TEST PROCEDURE TEX-403-A. CONSTRUCT RIPRAP AND BEDDING IN ACCORDANCE WITH TxDOT ITEM 432.3.2.3. DRY COMMON.

TYPICAL RIPRAP SECTION

SCALE: N.T.S.

RIPRAP GRADATIONS	
8" THICKNESS OF RIPRAP	
SIEVE SIZE SQUARE MESH	PERCENT PASSING
10 INCH	100
8 INCH	70-100
6 INCH	50-75
3 INCH	20-40
1-1/2 INCH	0-15

TYPICAL RIPRAP GRADATION

SCALE: N.T.S.

RECORD DRAWING

NOTE: THIS RECORD DRAWING IS A COMPILATION OF THE ORIGINAL SEALED ENGINEERING DRAWING FOR THIS PROJECT. INFORMATION FURNISHED BY THE CONTRACTOR, AND FIELD SURVEY VERIFICATION, TO THE BEST OF OUR KNOWLEDGE R-DELTA ENGINEERS, INC. STATES THAT THIS PLAN IS AS-BUILT.

03/16/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

"ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN."

DETENTION POND MAINTENANCE NOTES:

1. THE OWNER OF THE DETENTION FACILITY LOT SHALL BE RESPONSIBLE FOR ALL REPAIR AND MAINTENANCE OF THE DETENTION FACILITY.
2. DETENTION FACILITIES SHALL BE MOWED AT LEAST TWICE PER YEAR OR MORE FREQUENTLY WHEN NEEDED TO CONTROL WEEDS AND INHIBIT WOODY GROWTH.
3. DEBRIS, LITTER, AND SEDIMENT SHALL BE REMOVED FROM THE DETENTION FACILITY, CULVERTS, AND OUTFALL STRUCTURES AT LEAST TWICE PER YEAR AND AFTER EACH STORM EVENT WITH MORE THAN 2 INCHES OF RAINFALL IN A 24-HOUR PERIOD, WITH PARTICULAR ATTENTION GIVEN TO THE REMOVAL OF DEBRIS, LITTER, AND SEDIMENT AROUND OUTLET STRUCTURE.

POINT ABBREVIATIONS:

FG	FINISHED GRADE
FL	FLOWLINE
MEG	MATCH EXISTING GRADE
TP	TOP OF PAVING
TR	TOP OF ROCK SURFACING
EG	EXISTING GRADE

NOTE:
CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (SHOWN ON PLANS OR NOT) PRIOR TO CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON PLANS, THE CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION. R-DELTA ENGINEERS, INC. WILL NOT BE RESPONSIBLE FOR ANY WORK BY THE CONTRACTOR NEGLECTING TO LOCATE THESE UTILITIES.

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

RayburnElectric COOPERATIVE
r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

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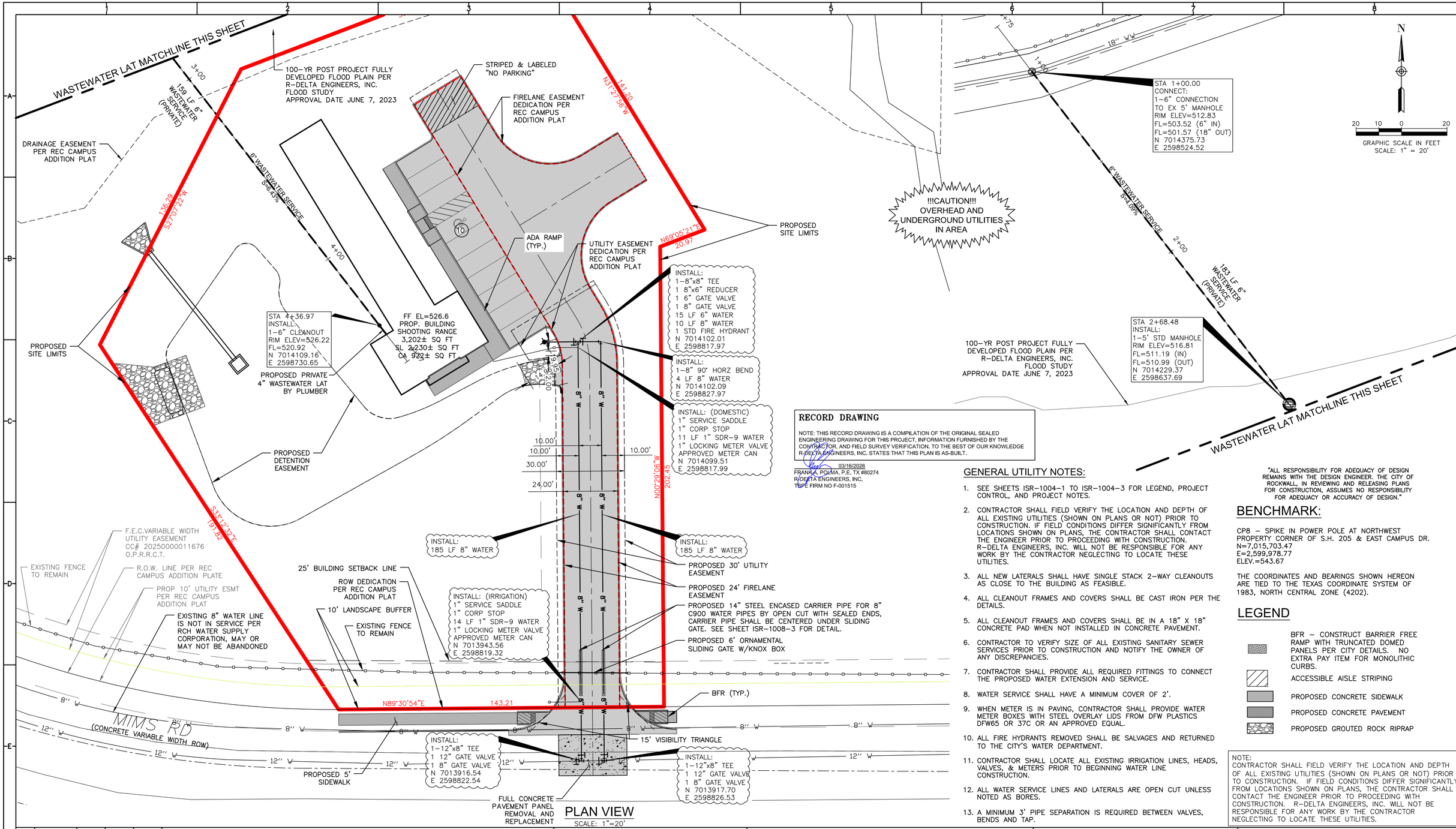
JOB NO.	3036-21	DESIGN BY	JMJ
CREATED		CODE	
PLOTTED	3/16/2026	CHECKED BY	RDE
LAST UPDATE BY			
DRAWN:	JMJ	SCALE:	AS NOTED
CHECKED:		DRAWING NO.:	ISSUE:
APPROVED:		ISR-1007-5	
FILENAME:			

REC CAMPUS EXPANSION INDOOR SHOOTING RANGE

MIMS RD
ROCKWALL, TX 75032

DETENTION POND DETAILS



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R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

GENERAL UTILITY NOTES:

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3. ALL NEW LATERALS SHALL HAVE SINGLE STACK 2-WAY CLEANOUTS AS CLOSE TO THE BUILDING AS FEASIBLE.
4. ALL CLEANOUT FRAMES AND COVERS SHALL BE CAST IRON PER THE DETAILS.
5. ALL CLEANOUT FRAMES AND COVERS SHALL BE IN A 18" X 18" CONCRETE PAD WHEN NOT INSTALLED IN CONCRETE PAVEMENT.
6. CONTRACTOR TO VERIFY SIZE OF ALL EXISTING SANITARY SEWER SERVICES PRIOR TO CONSTRUCTION AND NOTIFY THE OWNER OF ANY DISCREPANCIES.
7. CONTRACTOR SHALL PROVIDE ALL REQUIRED FITTINGS TO CONNECT THE PROPOSED WATER EXTENSION AND SERVICE.
8. WATER SERVICE SHALL HAVE A MINIMUM COVER OF 2'.
9. WHEN METER IS IN PAVING, CONTRACTOR SHALL PROVIDE WATER METER BOXES WITH STEEL OVERLAY LIDS FROM DFW PLASTICS DFW65 OR 37C OR AN APPROVED EQUAL.
10. ALL FIRE HYDRANTS REMOVED SHALL BE SALVAGES AND RETURNED TO THE CITY'S WATER DEPARTMENT.
11. CONTRACTOR SHALL LOCATE ALL EXISTING IRRIGATION LINES, HEADS, VALVES, & METERS PRIOR TO BEGINNING WATER LINE CONSTRUCTION.
12. ALL WATER SERVICE LINES AND LATERALS ARE OPEN CUT UNLESS NOTED AS BORES.
13. A MINIMUM 3' PIPE SEPARATION IS REQUIRED BETWEEN VALVES, BENDS AND TAP.

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BENCHMARK:

CP8 – SPIKE IN POWER POLE AT NORTHWEST PROPERTY CORNER OF S.H. 205 & EAST CAMPUS DR.
N=7,015,703.47
E=2,599,978.77
ELEV.=543.67

THE COORDINATES AND BEARINGS SHOWN HEREON ARE TIED TO THE TEXAS COORDINATE SYSTEM OF 1983, NORTH CENTRAL ZONE (4202).

LEGEND

- BFR – CONSTRUCT BARRIER FREE RAMP WITH TRUNCATED DOMED PANELS PER CITY DETAILS. NO EXTRA PAY ITEM FOR MONOLITHIC CURBS.
- ACCESSIBLE AISLE STRIPING
- PROPOSED CONCRETE SIDEWALK
- PROPOSED CONCRETE PAVEMENT
- PROPOSED GROUTED ROCK RIPRAP

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www.rdelta.com
TBPE No. F-1515

STATE OF TEXAS
FRANK A. POLMA
80274
LICENSED
PROFESSIONAL ENGINEER

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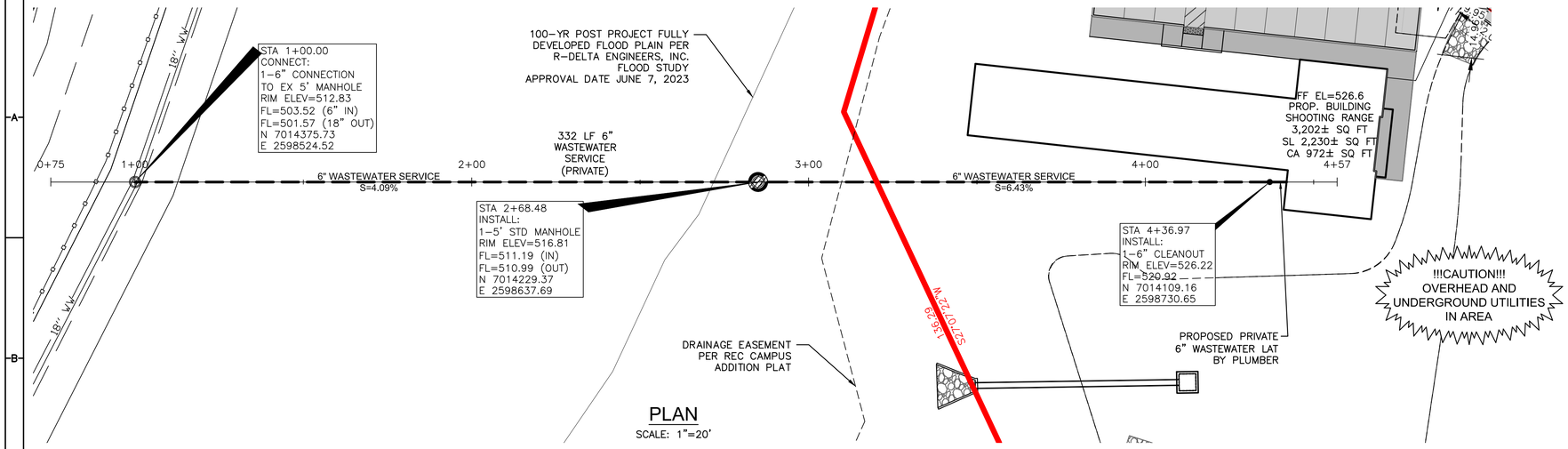
PLOTTED 3/16/2026	CHECKED BY RDE
LAST UPDATE BY	
DRAWN: JMJ	SCALE: AS NOTED
CHECKED:	DRAWING NO.: ISR-1008-1
APPROVED:	ISSUE:
FILENAME:	

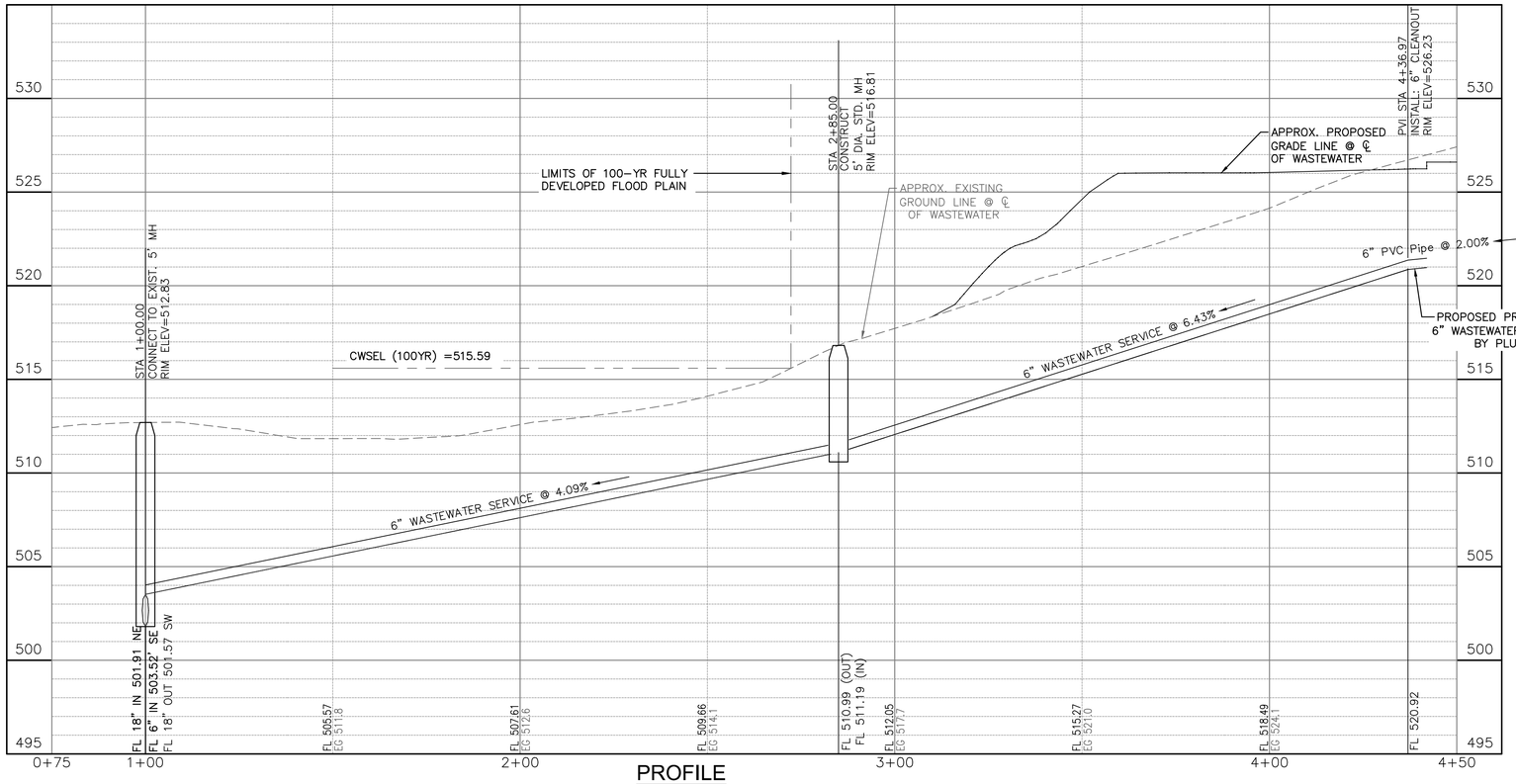
REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032

UTILITY PLAN



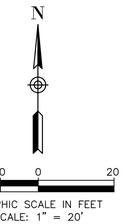
PLAN

SCALE: 1"=20'



PROFILE

SCALE (H): 1"=20'
SCALE (V): 1"=4'



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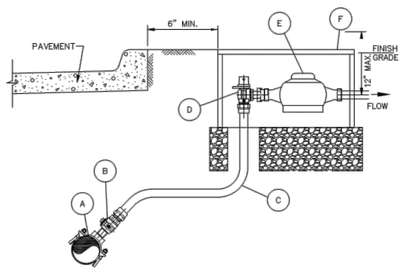
CREATED		CODE	
PLOTTED	3/16/2026	CHECKED BY	RDE
LAST UPDATE BY			
DRAWN:	JMJ	SCALE:	AS NOTED
CHECKED:		DRAWING NO.:	ISR-1008-2
APPROVED:		ISSUE:	
FILENAME:			

REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032
WASTEWATER LATERAL PROFILE



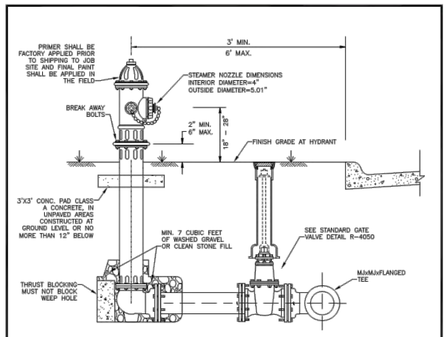
NOTES:

1. SERVICE PIPE SHALL BE 1" OR 2" SEAMLESS 250 PSI BLUE COLORED POLYETHYLENE ASTM D2737, SDR 9, CTS WATER SERVICE PIPE, NSF61 APPROVED.
2. TOP OF METER BOXES SHALL BE 1" ABOVE FINISHED GRADE.
3. METER BOX SHALL HAVE A MINIMUM OF 6" OF GRAVEL BENEATH METER BOX AS ILLUSTRATED.
4. LOCATION OF THE METER BOX SHALL BE LOCATED TO ALLOW 6" CLEARANCE FROM CURB.

MATERIAL LIST:

A. SERVICE SADDLE SHALL BE BRASS WITH DOUBLE BRONZE FLATTENED STRAPS OR STAINLESS STEEL DOUBLE BOLT WIDE STRAPS. NO BANDED OR HINGED STRAPS SHALL BE ALLOWED. SERVICE SADDLES SHALL MEET AWWA/CC TAPPING OUTLET (TAPERED THREADS) REQUIREMENTS. ALL SERVICE SADDLES SHALL BE PER APPROVED WATER MATERIALS LIST.
B. 1" OR 2" CORPORATION STOP PER APPROVED WATER MATERIALS LIST.
C. 1" OR 2" SERVICE PIPE SHALL BE SEAMLESS 250 PSI BLUE COLORED POLYETHYLENE ASTM D2737, SDR9, CTS WATER SERVICE PIPE, NSF61 APPROVED.
D. 1" OR 2" LOCKING ANGLE METER VALVE (STOP) PER APPROVED WATER MATERIALS LIST.
E. WATER METERS CENTERED IN BOX AS ILLUSTRATED.
F. ROUND METER BOX PER APPROVED WATER MATERIALS LIST.

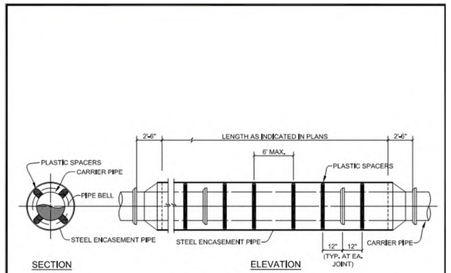
WATER SERVICE INSTALLATION	CITY OF ROCKWALL	
1" OR 2" LINE		DATE: AUG '19 / DRAWING NO.: R-4130



NOTES:

1. IN GENERAL, ALL FIRE HYDRANTS SHALL CONFORM TO AWWA STANDARD SPECIFICATIONS FOR FIRE HYDRANTS FOR ORDINARY WATER WORKS SERVICE, C-502. FIRE HYDRANTS SHALL HAVE A 5¼" MIN. VALVE OPENING AND A BARREL APPROXIMATELY 7' INSIDE DIAMETER. ALL HYDRANTS SHALL BE EQUIPPED WITH BREAK AWAY FLANGE.
2. ALL JOINTS TO BE RESTRAINED JOINTS. MEGA-LUGS OR APPROVED EQUAL.
3. TYPICAL VALVE: ACTUAL VALVE LOCATION WILL DEPEND ON LOCATION OF WATER MAIN.
4. NO FIRE HYDRANT CLOSER THAN 18' TO EXISTING OR PROPOSED SIDEWALKS. (USUAL)
5. STANDARD BURY DEPTH 4 FEET.
6. SET FIRE HYDRANT ON THE LOT LINE EXTENDED WHEN POSSIBLE.

FIRE HYDRANT INSTALLATION	CITY OF ROCKWALL	DATE: MAY '22 / DRAWING NO.: R-4120



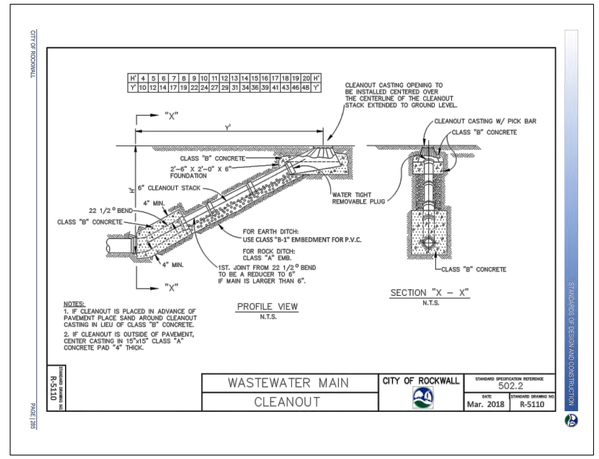
ENCASED ROAD BORE

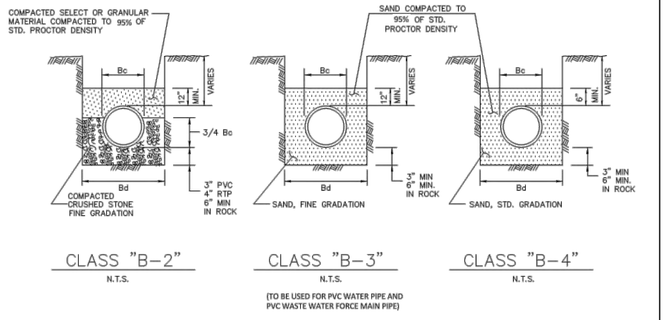
NO SCALE

NOTES:

1) ALL BORES BY CONTRACTOR SHALL BE DRY BORES.
2) PREFABRICATED PLASTIC SPACERS SHALL BE RACINORTH AMERICA OR APPROVED EQUAL, FOR THE SPECIFIC APPLICATION AS RECOMMENDED BY THE MANUFACTURER.
3) CONTRACTOR SHALL PROVIDE SUPPORT UNDER CARRIER PIPE TO HAVE A MIN. 1" CLEARANCE BETWEEN PIPE BELL AND ENCASEMENT PIPE.
4) ENDS OF ENCASEMENT PIPE SHALL HAVE END SEALS INSTALLED PER MANUFACTURER'S REQUIREMENTS. END SEALS SHALL BE CCI MODEL ESW WRAP-AROUND BY CCI PIPELINE SYSTEMS OR APPROVED EQUAL.
5) THE DESIGN ENGINEER SHALL DESIGN THE MINIMUM THICKNESS OF THE ENCASEMENT PIPE. DESIGN WILL NEED TO INCLUDE DEAD LOADING BASED ON THE HEIGHT OF COVER AND HS-20 LOADINGS FOR ROADWAY CROSSINGS AND E-80 LOADINGS FOR RAILROAD CROSSINGS.
6) STEEL ENCASEMENT PIPE SHALL CONFORM TO AWWA C-200, PIPE SHALL BE FABRICATED IN ACCORDANCE WITH ASTM A-570 FROM STEEL PLATES HAVING MINIMUM YIELD STRENGTH 36,000 PSI.
7) STEEL ENCASEMENT PIPE SHALL BE PAINTED INSIDE AND OUTSIDE WITH TWO COATS OF TNEMEC, HB TNEMECOL SERIES 46-465 COAL TAR, OR CITY APPROVED EQUIVALENT PRIOR TO DELIVERY TO THE JOB SITE. MINIMUM COATING INSIDE AND OUTSIDE SHALL BE 12-MILS DRY FILM THICKNESS (DFT) PER EACH COAT.
8) ENCASEMENT PIPE SHALL BE FIELD WELDED IN ACCORDANCE WITH AWWA C-206. WELDED JOINTS SHALL BE WIRE BRUSHED AND PAINTED WITH ONE COAT OF TNEMEC, OMNITHANE SERIES 530, 2.5-MILS DRY FILM THICKNESS (DFT) OR CITY APPROVED EQUIVALENT.

UNDERGROUND CONDUIT STEEL ENCASED BORE	CITY OF ROCKWALL	DATE: OCT. '17 / DRAWING NO.: R-3090





CLASS "B-2" N.T.S.

CLASS "B-3" N.T.S.

(TO BE USED FOR PVC WATER PIPE AND PVC WASTE WATER FORCE MAIN PIPE)

CLASS "B-4" N.T.S.

NOTES:

1. Bc = OUTSIDE DIAMETER OF PIPE
2. Bd = TRENCH WIDTH
3. NO GRANULAR MATERIAL ABOVE ROCK OR STONE EMBEDMENT

EMBEDMENT CLASS "B-2","B-3", & "B-4"	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE: 504.5 / DATE: AUG. '19 / STANDARD DRAWING NO.: R-3030

DRAWING NO. 3030

RECORD DRAWING

NOTE: THIS RECORD DRAWING IS A COMPILATION OF THE ORIGINAL SEALED ENGINEERING DRAWING FOR THIS PROJECT, INFORMATION FURNISHED BY THE CONTRACTOR, AND FIELD SURVEY VERIFICATION. TO THE BEST OF OUR KNOWLEDGE R-DELTA ENGINEERS, INC. STATES THAT THIS PLAN IS AS-BUILT.

03/16/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

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REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

Rayburn Electric Cooperative
r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

STATE OF TEXAS — FRANK A. POLMA — 80274 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY FRANK A. POLMA, P.E. 80274 ON 8/04/2025. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

JOB NO. 3036-21	DESIGN BY JMJ		
CREATED	CODE		
PLOTTED 3/16/2026	CHECKED BY RDE		
LAST UPDATE BY			
DRAWN: JMJ	SCALE: AS NOTED		
CHECKED:	DRAWING NO.: ISR-1008-3	ISSUE:	
APPROVED:			
FILENAME:			

REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032

UTILITY DETAILS

SITE DESCRIPTION

PROJECT NAME & LOCATION:
REC CAMPUS EXPANSION – INDOOR SHOOTING RANGE – MIMS RD
ROCKWALL, TEXAS 75032

IS THIS A SHARED SWPPP ? ____YES __X__ NO

IF YES, AREAS OF RESPONSIBILITY OF EACH OPERATOR SHALL BE INDICATED IN SWPPP. EACH OPERATOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION AND MAINTENANCE OF ALL ASPECTS OF THIS SWPPP.

OPERATOR NAME & ADDRESS:
RAYBURN ELECTRIC COOPERATIVE
950 SIDS ROAD
ROCKWALL, TEXAS 75032

CONTRACTOR NAME & ADDRESS:
TBD

PROJECT DESCRIPTION:
CONSTRUCTION OF CIVIL SITE IMPROVEMENTS INCLUDING GRADING, SUBGRADE, DRAINAGE, FENCING, AND PAVING.

SEQUENCE OF MAJOR CONSTRUCTION ACTIVITIES:
1. INSTALL EROSION CONTROL MEASURES.
2. REMOVE AND DISPOSE OF EXISTING IMPROVEMENTS.
3. STRIP SITE OF VEGETATION/ORGANICS.
4. INSTALL DRAINAGE, CURB, PLACE AND COMPACT FILL, FENCING, SUBGRADE, AND PAVING.
5. INSTALL PERMANENT SITE STABILIZATION.
6. REMOVE EROSION CONTROL MEASURES.

DESCRIPTION OF POTENTIAL POLLUTANTS:
POTENTIAL POLLUTANTS MAY INCLUDE: STOCKPILED SOILS, CHEMICALS, FERTILIZERS, CONCRETE AND ASPHALT WASTE FLUIDS, OILS, GREASE FROM TRUCKS AND EQUIPMENT, CONSTRUCTION DEBRIS (INCLUDING GARBAGE), SEDIMENT FROM STORM WATER RUNOFF, AND SLURRY FROM CONCRETE SAW CUTTING.

PRE-DEVELOPMENT RUNOFF COEFFICIENT: 0.35

FINAL RUNOFF COEFFICIENT AFTER CONSTRUCTION: 0.9

TOTAL PROJECT AREA: 1.41± ACRES

TOTAL AREA TO BE DISTURBED, INCLUDING OFF-SITE MATERIAL STORAGE AREAS, OVERBURDEN AND STOCKPILES OF DIRT, AND BORROW AREAS THAT ARE AUTHORIZED UNDER THE PERMITTEE'S NOI: 1.41± ACRES

DESCRIPTION OF EXISTING SOIL:
FERRIS-HEIDEN COMPLEX & HOUSTON BLACK CLAY

DESCRIPTION OF STABILIZATION OF EXISTING DRAINAGE WAYS:
INSTALL RIPRAP AND RE-ESTABLISH VEGETATION AS NECESSARY

DESCRIPTION OF LOCATIONS WHERE STORMWATER DISCHARGES FROM PROJECT DRAIN DIRECTLY TO SURFACE WATER BODIES (WATERS OF THE U.S. OR SURFACE WATERS IN THE STATE) OR INTO MS4:
STORMWATER DISCHARGES VIA SHEET/SWALE FLOW TO AN EXISTING DITCH ALONG THE NORTH SIDE OF THE PROPERTY THAT DRAINS INTO THE BIG SANDY CREEK.

NAME OF RECEIVING WATERS:
BIG SANDY CREEK-NECHES RIVER

ESTIMATED PROJECT START DATE: _____

ESTIMATED PROJECT END DATE: _____

GENERAL PERMIT AUTHORIZATION #: TXR 150000

DATE NOTICE OF INTENT SENT TO TCEQ : N/A

EROSION AND SEDIMENT CONTROLS

STABILIZATION PRACTICES

TEMPORARY:
__X__ ESTABLISHED VEGETATION (SEED OR SOD @ 70% DENSITY)
N/A MULCHING
N/A TACKIFIER
N/A EROSION CONTROL BLANKETS

PERMANENT:
__X__ ESTABLISHED PERENNIAL VEGETATION (SEED OR SOD @ 80% DENSITY)
N/A ESTABLISHED VEGETATION OTHER THAN SEED OR SOD (LANDSCAPING)
__X__ PAVING
__X__ RIPRAP, GABIONS OR GEOTEXTILES

STABILIZATION PRACTICES
DISTURBED AREAS INCLUDING HOUSE LOTS OR PROPOSED HOUSE LOTS ON WHICH CONSTRUCTION ACTIVITY HAS CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITIES ARE SCHEDULED TO RESUME WITHIN 21 DAYS.

INDICATE SELECTION WITH AN "X", IF NOT APPLICABLE, INDICATE N/A.
ALL BMPs SELECTED SHALL BE INDICATED ON THE EROSION CONTROL PLAN.

__X__	SILT FENCE	(BMP ID S-1)
N/A	ORGANIC FILTER BERMN, NO HAYBALES ALLOWED	(BMP ID S-2)
N/A	TRIANGULAR SEDIMENT FILTER DIKE	(BMP ID S-3)
N/A	INLET PROTECTION	(BMP ID S-4)
N/A	STONE OUTLET SEDIMENT TRAP	(BMP ID S-5)
N/A	SEDIMENT BASIN*	(BMP ID S-6)
__X__	CHECK DAM	(BMP ID S-7)
N/A	TEMPORARY SEDIMENT TANK	(BMP ID S-8)
__X__	STABILIZED CONSTRUCTION ENTRANCE	(BMP ID S-9)
N/A	WHEEL WASH	(BMP ID S-10)
N/A	INTERCEPTOR SWALE	(BMP ID E-1)
N/A	DIVERSION DIKE	(BMP ID E-2)
N/A	PIPE SLOPE DRAIN	(BMP ID E-3)
__X__	ESTABLISH VEGETATION (SEED OR SOD @ 70% DENSITY) **	(BMP ID E-4)
N/A	MULCHING	(BMP ID E-5)
N/A	EROSION CONTROL BLANKETS	(BMP ID E-6)
__X__	CHANNEL PROTECTION	(BMP ID E-7)
__X__	DUST CONTROL	(BMP ID E-8)
__X__	TREE PRESERVATION	

*1) SEDIMENT BASIN(S) CALCULATIONS SHALL BE INCLUDED IN SWPPP
2) REQUIRED FOR 10 ACRES OR LARGER IF FEASIBLE, WRITTEN EXPLANATION REQUIRED IF DECLARED NOT FEASIBLE
** INCLUDING PRESERVATION OF EXISTING VEGETATION

POST DEVELOPMENT STORMWATER MANAGEMENT FEATURES

__X__	ESTABLISHED PERENNIAL VEGETATION (SEED OR SOD @ 80% DENSITY)
N/A	ESTABLISHED VEGETATION OTHER THAN SEED OR SOD (LANDSCAPING)
__X__	CURB & GUTTER
N/A	STORM SEWER
N/A	STORM SEWER INLETS
__X__	CULVERTS
N/A	GABIONS
__X__	VELOCITY DISSIPATION DEVICES
N/A	DETENTION, RETENTION, OR AMENITY POND;

IF A DETENTION OR RETENTION FACILITY OR AMENITY POND WILL BE PART OF A DEVELOPMENT, THE DEVELOPER SHALL CONSTRUCT THE FACILITY DURING THE INITIAL PHASES OF DEVELOPMENT, AND SHALL ENSURE THAT THE FACILITY IS FULLY FUNCTIONAL AS DESIGNED INCLUDING THE ESTABLISHMENT OF A STABILIZED COVER, WHICH SHALL BE MAINTAINED THROUGHOUT THE REMAINING PHASES OF CONSTRUCTION.

THE FOLLOWING INDICATED PRACTICES SHALL BE FOLLOWED

__X__	DEBRIS AND TRASH MANAGEMENT	(BMP ID M-1)
__X__	CHEMICAL MANAGEMENT	(BMP ID M-2)
__X__	CONCRETE WASTE MANAGEMENT	(BMP ID M-3)
__X__	CONCRETE SAW CUTTING WASTE MANAGEMENT	(BMP ID M-4)
N/A	SANDBLASTING WASTE MANAGEMENT	(BMP ID M-5)
N/A	LIME STABILIZATION WASTE MANAGEMENT	(BMP ID M-6)
__X__	SANITARY FACILITIES *	(BMP ID M-7)

* INDICATE PROPOSED LOCATION(S) OF SANITARY FACILITIES ON EROSION CONTROL PLAN.

(ALL SELECTED BMPs FROM MOST CURRENT NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS BEST MANAGMENT PRACTICES FOR CONSTRUCTION ACTIVITIES MANUAL SHALL BE ATTACHED TO THIS SWPPP. THE MANUAL IS FREE FOR DOWNLOAD IN PDF FORMAT AT:
http://www.dfwstormwater.com/construction/

ON SITE OR ADJACENT WETLANDS IDENTIFIED? __YES __NO __X__N/A
IF YES, INDICATE LOCATION OF WETLAND(S) ON EROSION CONTROL PLAN

ON SITE OR ADJACENT SURFACE WATERS IDENTIFIED? __YES __NO __X__N/A
IF YES, INDICATE LOCATION OF SURFACE WATERS ON EROSION CONTROL PLAN

WILL THIS PROJECT HAVE A BATCH PLANT? __YES __X__NO __N/A
IF YES, INDICATE PROPOSED LOCATION OF BATCH PLANT ON EROSION CONTROL PLAN
NOTE: TCEQ REQUIRES STORMWATER RUNOFF SAMPLE ANALYSIS FOR BATCH PLANT OPERATIONS

WILL THIS PROJECT HAVE OFF-SITE CONSTRUCTION SUPPORT ACTIVITIES THAT ARE AUTHORIZED UNDER THE PERMITTEE'S NOI, INCLUDING MATERIAL, WASTE, BORROW, FILL, OR EQUIPMENT STORAGE AREAS? _____ YES __X__ NO

IF YES, INDICATE LOCATION ON EROSION CONTROL PLAN

*WILL STORMWATER DISCHARGES FROM THIS PROJECT EFFECT PROPERTY LISTED OR ELIGIBLE FOR LISTING ON THE NATIONAL REGISTER OF HISTORIC PLACES. ____YES __X__NO

RECORD DRAWING

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03/16/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

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STATE OF TEXAS
FRANK A. POLMA
80274
REGISTERED
PROFESSIONAL ENGINEER

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JOB NO.	3036-21	DESIGN BY	JMJ
CREATED		CODE	
PLOTTED	3/16/2026	CHECKED BY	RDE
LAST UPDATE BY			
DRAWN:	JMJ	SCALE:	NONE
CHECKED:		DRAWING NO.:	ISSUE:
APPROVED:		ISR-1009-1	
FILENAME:			

REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032

SWPPP NARRATIVE 1

SEQUENCE AND TIMING OF INDICATED EROSION CONTROL PRACTICES AND/OR FEATURES

(INCLUDE TREATMENT OF STOCKPILED DIRT FOR FUTURE USE)

1) INSTALL PERIMETER CONTROLS: DAYS 0–5
2) INSTALL STABILIZED CONSTRUCTION ENTRANCE: DAYS 0–5
3) INSTALL STAKED PORTABLE TOILET: DAYS 0–5
4) INSTALL INTERIOR CONTROLS: DAYS 5–15
5) STRIP SITE OF VEGETATION/ORGANICS, STOCKPILE TOPSOIL: DAYS 15–30 (STOCKPILED SOIL SHALL BE STABILIZED WITHIN 14 DAYS, UNLESS ACTIVITIES TO REUSE IT BEGIN WITHIN 21 DAYS)
6) INSTALL & MAINTAIN CONCRETE WASHOUT AREAS: DAYS 5–40
7) FINAL SITE STABILIZATION/COMPLETION: DAYS 45–55
8) REMOVE TEMPORARY BMP'S: DAYS 55–60

NOTE: ALL BMP'S SHALL BE MAINTAINED AS NECESSARY DURING THE ENTIRE CONSTRUCTION PROCESS.

DETAILED DESCRIPTION OF BMP MAINTENANCE PROTOCOLS

INSPECTION OF BMP'S SHALL BE PERFORMED BY THE OPERATOR DESIGNATED INSPECTOR REFERENCED IN THE STORMWATER POLLUTION PREVENTION PLAN LOCATED AT THE ONSITE CONSTRUCTION OFFICE. INSPECTION MUST BE CONDUCTED PER THE TPDES GENERAL PERMIT NUMBER TXR150000 AS REFERENCED IN PART 3, SECTION F, NUMBER 8.

DESCRIPTION OF METHODS USED TO MODIFY STORM WATER POLLUTION CONTROLS IF EXISTING CONTROLS ARE DETERMINED INADEQUATE

THE PERMITTED MUST REVISE OR UPDATE THE STORM WATER POLLUTION PREVENTION PLAN WHENEVER:

1. THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE THAT HAS A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS AND THAT HAS NOT BEEN PREVIOUSLY ADDRESSED IN THE STORM WATER POLLUTION PREVENTION PLAN; OR

2. RESULTS OF INSPECTION OR INVESTIGATIONS BY SITE INSPECTORS, OPERATORS OF MUNICIPAL SEPARATE STORM SEWER SYSTEM RECEIVING THE DISCHARGE, AUTHORIZED TCEQ PERSONNEL, OR A FEDERAL, STATE OR LOCAL AGENCY APPROVING SEDIMENT AND EROSION PLANS INDICATE THE STORM WATER POLLUTION PREVENTION PLAN IS PROVING INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS IN DISCHARGES AUTHORIZED UNDER THIS GENERAL PERMIT.

NOTE:

1.) THE NOTICE OF INTENT (NOI) AND ACKNOWLEDGEMENT CERTIFICATE FOR PRIMARY OPERATORS OF LARGE CONSTRUCTION SITES, AND THE SITE NOTICE FOR SMALL CONSTRUCTION SITES AND FOR SECONDARY OPERATORS OF LARGE CONSTRUCTION SITES SHALL BE POSTED AT THE SITE.

2.) A COPY OF THE TPDES GENERAL PERMIT TXR15000 SHALL BE ATTACHED TO THIS SWPPP.

EROSION AND SEDIMENT CONTROLS

MAINTENANCE/INSPECTION PROCEDURES

1. THE OPERATOR SHALL PROVIDE AND MAINTAIN A RAIN GAUGE UTILIZING MIN. 0.1 INCH INCREMENTS AT THE PROJECT SITE.
2. CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY 7 CALENDAR DAYS. IF A REPAIR IS NECESSARY IT WILL BE DONE AT THE EARLIEST PRACTICABLE DATE.
3. INSPECTION SHALL BE PERFORMED BY THE OPERATOR'S REPRESENTATIVE. AN INSPECTION AND MAINTENANCE REPORT SHALL BE MADE FOR EACH INSPECTION AND KEPT AT 950 SIDS ROAD, ROCKWALL, TEXAS 75032. THE INSPECTOR SHALL USE THE OPERATOR INSPECTION FORM IN THE NCTCOG CONSTRUCTION BMP MANUAL OR OTHER FORM APPROVED BY THE OWNER.
4. THE FOLLOWING RECORDS SHALL BE MAINTAINED IN THE PROJECT INSPECTOR'S DAILY LOG:
   A. DATES WHEN MAJOR GRADING ACTIVITIES OCCUR.
   B. DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE.
   C. DATES WHEN STABILIZATION MEASURES ARE INITIATED.
5. THE OPERATOR SHALL SIGN AND POST ON–SITE THE APPROPRIATE TCEQ SITE NOTICE.
6. THE OPERATOR SHALL SIGN AND POST ON–SITE A COPY OF THE TCEQ NOI (FOR PROJECTS THAT DISTURB 5 ACRES OR MORE).
7. THE OPERATOR SHALL PROVIDE THE OWNER WITH A COPY OF ANALYSIS OF STORM WATER RUNOFF SAMPLES REQUIRED BY TCEQ FOR BATCH PLANT OPERATIONS.

OTHER (DESCRIBE) N/A

THE FOLLOWING NON–STORM WATER DISCHARGES FROM SITES AUTHORIZED UNDER THE GENERAL PERMIT ARE ALSO ELIGIBLE FOR AUTHORIZATION UNDER THE GENERAL PERMIT:

. DISCHARGES FROM FIRE FIGHTING ACTIVITIES (FIRE FIGHTING ACTIVITIES DO NOT INCLUDE WASHING OF TRUCKS, RUN–OFF WATER FROM TRAINING ACTIVITIES, TEST WATER FROM FIRE SUPPRESSION SYSTEMS, AND SIMILAR ACTIVITIES);

. * UNCONTAMINATED FIRE HYDRANT FLUSHINGS (EXCLUDING DISCHARGES OF HYPERCHLORINATED WATER, UNLESS THE WATER IS FIRST DECHLORINATED AND DISCHARGES ARE NOT EXPECTED TO ADVERSELY AFFECT AQUATIC LIFE), WHICH INCLUDE FLUSHINGS FROM SYSTEMS THAT UTILIZE POTABLE WATER, SURFACE WATER, OR GROUNDWATER THAT DOES NOT CONTAIN ADDITIONAL POLLUTANTS (UNCONTAMINATED FIRE HYDRANT FLUSHINGS DO NOT INCLUDE SYSTEMS UTILIZING RECLAIMED WASTEWATER AS A SOURCE WATER);

. WATER FROM THE ROUTINE EXTERNAL WASHING OF VEHICLES, THE EXTERNAL PORTION OF BUILDINGS OR STRUCTURES, AND PAVEMENT, WHERE DETERGENTS AND SOAPS ARE NOT USED AND WHERE SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED (UNLESS SPILLED MATERIALS HAVE BEEN REMOVED; AND IF LOCAL STATE, OR FEDERAL REGULATIONS ARE APPLICABLE, THE MATERIALS ARE REMOVED ACCORDING TO THOSE REGULATIONS), AND WHERE THE PURPOSE IS TO REMOVE MUD, DIRT, OR DUST;

. UNCONTAMINATED WATER USED TO CONTROL DUST;

. * POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS (EXCLUDING DISCHARGES OF HYPERCHLORINATED WATER, UNLESS THE WATER IS FIRST DECHLORINATED AND DISCHARGES ARE NOT EXPECTED TO ADVERSELY AFFECT AQUATIC LIFE);

. UNCONTAMINATED AIR CONDITIONING CONDENSATE;

. UNCONTAMINATED GROUND WATER OR SPRING WATER, INCLUDING FOUNDATION OR FOOTING DRAINS WHERE FLOWS ARE NOT CONTAMINATED WITH INDUSTRIAL MATERIALS SUCH AS SOLVENTS; AND

. LAWN WATERING AND SIMILAR IRRIGATION DRAINAGE.

* HYPERCHLORINATED WATER (3.5 MG/L OR GREATER OF FREE CHLORINE) RESULTING FROM WATERLINE STERILIZATION SHALL BE DECHLORINATED AND NOT EXPECTED TO ADVERSELY AFFECT AQUATIC LIFE.

SIGNATORY REQUIREMENTS

THE OWNER HAS ADOPTED THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG) CONSTRUCTION BMP MANUAL. THIS DOCUMENT WAS DEVELOPED AS AN AID FOR THOSE PREPARING STORM WATER POLLUTION PREVENTION PLANS (SW3P'S) FOR VARIOUS CONSTRUCTION ACTIVITIES. THEIR USE DOES NOT RELIEVE THE DESIGN ENGINEER OR OPERATOR(S) FROM COMPLYING WITH THE NCTCOG BMP MANUAL OR THE TEXAS POLLUTION DISCHARGE ELIMINATION SYSTEM (TPDES) GENERAL PERMIT FOR STORM WATER DISCHARGE FROM CONSTRUCTION SITES.

THE SW3P SHALL BE SEALED BY A TEXAS REGISTERED PROFESSIONAL ENGINEER AND CERTIFIED BY THE OPERATOR THAT THE INFORMATION IS TRUE AND THAT THEY ASSUME RESPONSIBILITY FOR THE PLAN. ADDITIONALLY, THEY SHALL CERTIFY THAT THE PLAN MEETS STATE AND LOCAL REQUIREMENTS FOR EROSION AND SEDIMENT CONTROL AND STORM WATER QUALITY. IN ALL CASES, A DULY AUTHORIZED REPRESENTATIVE AS INDICATED IN THE GENERAL PERMIT MAY CERTIFY THIS PLAN.

PRIOR TO THE COMMENCEMENT OF WORK ON PROJECTS 5 ACRES OR LARGER THE OPERATOR SHALL SUBMIT NOTICES OF INTENT (NOI) TO DISCHARGE STORM WATER FROM A CONSTRUCTION SITE UNDER THE TPDES PERMIT. NO WORK WILL BE ALLOWED UNTIL COPIES OF ALL APPROPRIATE NOI'S AND CERTIFICATIONS ARE RECEIVED BY THE OWNER.

EROSION CONTROL BEST MANAGEMENT PRACTICES DETAILED IN THIS PLAN REDUCE STORMWATER POLLUTION DURING CONSTRUCTION TO THE MAXIMUM EXTENT PRACTICABLE.

CONSULTING ENGINEER: _____ DATE: 7/8/2025

OWNER'S PROJECT MANAGER: _____ DATE: _____

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE THOROUGHLY REVIEWED THIS STORMWATER POLLUTION PREVENTION PLAN (SW3P) AND THAT I UNDERSTAND AND AGREE TO COMPLY WITH THE TERMS AND CONDITIONS OF THE SW3P INCLUDING BMP INSTALLATION AND MAINTENANCE. I ALSO UNDERSTAND THAT IT IS UNLAWFUL FOR ANY PERSON TO CAUSE OR CONTRIBUTE TO A VIOLATION OF WATER QUALITY STANDARDS.

PRINTED NAME: _____ TITLE: _____

SIGNATURE: _____ DATE: _____
CONTRACTOR

RECORD DRAWING

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03/16/2026
FRANK A. POLMA, P.E. TX #80274
R.DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

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RayburnElectric COOPERATIVE

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STATE OF TEXAS
FRANK A. POLMA
80274
REGISTERED
PROFESSIONAL ENGINEER
8/04/2025

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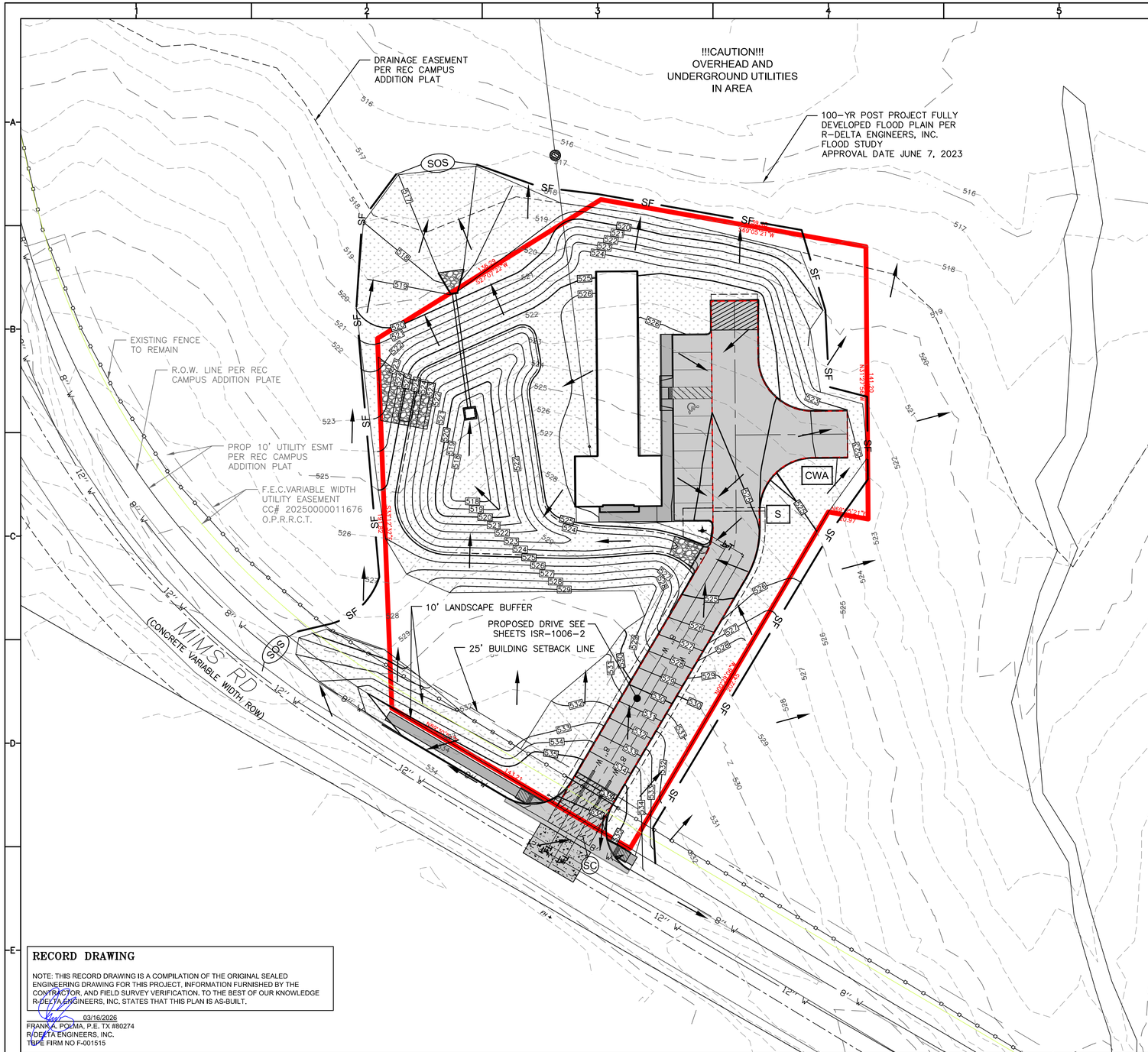
JOB NO. 3036–21	DESIGN BY JMJ		
CREATED	CODE		
PLOTTED 3/16/2026	CHECKED BY RDE		
LAST UPDATE BY			
DRAWN: JMJ	SCALE: NONE		
CHECKED:	DRAWING NO.: ISR-1009-2	ISSUE:	
APPROVED:			
FILENAME:			

REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032

SWPPP NARRATIVE 2



EROSION AND SEDIMENTATION CONTROL NOTES

1) REFER TO SHEET ISR-1004-1 FOR LEGEND, PROJECT CONTROL AND PROJECT NOTES.
2) EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE START OF ANY SITE PREPARATION WORK AND SHALL BE MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
3) EROSION CONTROL MEASURES SHALL BE INSPECTED AND REPAIRED, IF NECESSARY, AT THE EARLIEST POSSIBLE DATE BUT NO LATER THAN SEVEN (7) CALENDAR DAYS AFTER EACH RAIN. ANY ITEM DISTURBED BY THE CONTRACTOR SHALL BE REPAIRED.
4) SURFACE WATER RUNOFF SHALL BE KEPT FROM ENTERING INTO ANY EXCAVATED AREAS AND UTILITY TRENCHES AT ALL TIMES.
5) THE CONTRACTOR IS RESPONSIBLE FOR MONITORING DOWNSTREAM CONDITIONS THROUGHOUT THE CONSTRUCTION PERIOD AND WILL CLEAN ANY DEBRIS AND SEDIMENT CAUSED BY CONSTRUCTION.
6) THE CONTRACTOR SHALL PREVENT EROSION OF THE SITE AND PROTECT ALL DRAINAGE STRUCTURES BY THE USE OF SILT FENCING, OR OTHER APPROVED EROSION CONTROL PRODUCTS, AS NEEDED. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY THE COUNTY ENGINEER'S OFFICE DURING ON-SITE INSPECTIONS.
7) ALL POLLUTION PREVENTION CONTROL DEVICES SHALL CONFORM TO VAN ZANDT COUNTY REQUIREMENTS OR THE NORTH CENTRAL COUNCIL OF GOVERNMENTS (NCTCOG) MANUAL OF "STORMWATER QUALITY BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES" (BMP MANUAL) AND TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REQUIREMENTS.
8) THE EXISTING CULVERTS AND DRAINAGE CHANNELS SHALL BE PROTECTED FROM UNFILTERED STORM WATER RUNOFF AT ALL TIMES.
9) THE LOCATION OF THE PROPOSED CONSTRUCTION EXIT IS SHOWN ON THIS PLAN. ALL CONSTRUCTION VEHICLES SHALL ENTER AND LEAVE THE PROJECT AREA VIA A CONSTRUCTION EXIT. IF ADDITIONAL POINTS OF SITE INGRESS AND EGRESS BECOME NECESSARY, ADDITIONAL CONSTRUCTION EXITS SHALL BE CONSTRUCTED AS REQUIRED WITH LOCATIONS APPROVED BY THE CITY OR COUNTY INSPECTOR.
10) THE ROCK FILTER DAMS IN THE DRAINAGE CHANNEL SHALL BE MAINTAINED FOR THE ENTIRE PROJECT DURATION.
11) THE LOCATIONS OF SILT FENCING SHOWN ON THIS PLAN ARE APPROXIMATE AND WILL BE MODIFIED AS DIRECTED BY THE CITY AND COUNTY'S REPRESENTATIVE AS TO PREVENT UNFILTERED STORM WATER FROM EXITING CONSTRUCTION AREAS. THE PRICE BID FOR EROSION CONTROL SHALL INCLUDE ALL NECESSARY MEASURES TO PREVENT UNFILTERED STORMWATER FROM EXITING CONSTRUCTION AREAS. THERE WILL BE NO EXTRA PAYMENT FOR ADDITIONAL SILT FENCING THAT MAY BECOME NECESSARY DURING CONSTRUCTION OPERATIONS.
12) ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES OUTSIDE OF PROPOSED CONCRETE PAVING OR ROCK SURFACING SHALL BE STABILIZED BY BROADCAST SEEDING & FERTILIZER PER THIS SHEET OVER 4 INCHES OF COMPACTED TOPSOIL.
13) ANY LAND CLEARING, CONSTRUCTION, OR DEVELOPMENT INVOLVING THE MOVEMENT OF EARTH SHALL BE IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN. AN EROSION AND SEDIMENT CONTROL CONTRACTOR SHALL BE ON SITE ON ALL DAYS WHEN CONSTRUCTION OR GRADING ACTIVITY TAKES PLACE.

SITE NOTES:

1. SITE SURFACE WATERS: NONE.
2. ON-SITE WETLANDS: NO ON-SITE WETLANDS EXIST PER U.S. FISH AND WILDLIFE SERVICE NATIONAL WETLANDS INVENTORY MAP.
3. TREE PROTECTION AS REQUIRED, IF NOT NOTATED TO REMOVE, NO EXTRA PAY ITEM.

NOTE: EROSION & SEDIMENT CONTROL BMPS SHALL BE IN PLACE PRIOR TO ANY SOIL DISTURBING ACTIVITIES.

"ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN."

NOTE:
CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (SHOWN ON PLANS OR NOT) PRIOR TO CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON PLANS, THE CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION. R-DELTA ENGINEERS, INC. WILL NOT BE RESPONSIBLE FOR ANY WORK BY THE CONTRACTOR NEGLECTING TO LOCATE THESE UTILITIES.

GRAPHIC SCALE IN FEET
30 15 0 30
SCALE: 1" = 30'

SITE ADDRESS

2686 S GOLIAD ST (SH 205)
ROCKWALL, TX 75032

LEGEND

- DRAINAGE FLOW
- SF — PROPOSED SILT FENCE
- PROPOSED 4" REINFORCED CLASS "C" CONCRETE
- PROPOSED 6" REINFORCED CLASS "C" CONCRETE
- PROPOSED GROUTED ROCK RIPRAP
- 550 — EXISTING SURFACE CONTOUR MAJOR
- 551 — EXISTING SURFACE CONTOUR MINOR
- 550 — PROPOSED SURFACE CONTOUR MAJOR
- 551 — PROPOSED SURFACE CONTOUR MINOR
- SC — PROPOSED CONSTRUCTION EXIT
- PROPOSED ROCK FILTER DAM
- SF — SOS — SF PROPOSED SILT FENCE WITH STONE OVERFLOW STRUCTURE
- IP PROPOSED INLET PROTECTION
- S PROPOSED SANITARY FACILITY
- CWA PROPOSED CONCRETE WASHOUT AREA
- PROPOSED CONSTRUCTION ENTRANCE
- PROPOSED VEGETATIVE STABILIZATION

BENCHMARK:

CP8 – SPIKE IN POWER POLE AT NORTHWEST PROPERTY CORNER OF S.H. 205 & EAST CAMPUS DR.
N=7,015,703.47
E=2,599,978.77
ELEV.=543.67

THE COORDINATES AND BEARINGS SHOWN HEREON ARE TIED TO THE TEXAS COORDINATE SYSTEM OF 1983, NORTH CENTRAL ZONE (4202).

RECORD DRAWING

NOTE: THIS RECORD DRAWING IS A COMPILATION OF THE ORIGINAL SEALED ENGINEERING DRAWING FOR THIS PROJECT, INFORMATION FURNISHED BY THE CONTRACTOR, AND FIELD SURVEY VERIFICATION. TO THE BEST OF OUR KNOWLEDGE R-DELTA ENGINEERS, INC. STATES THAT THIS PLAN IS AS-BUILT.

03/16/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

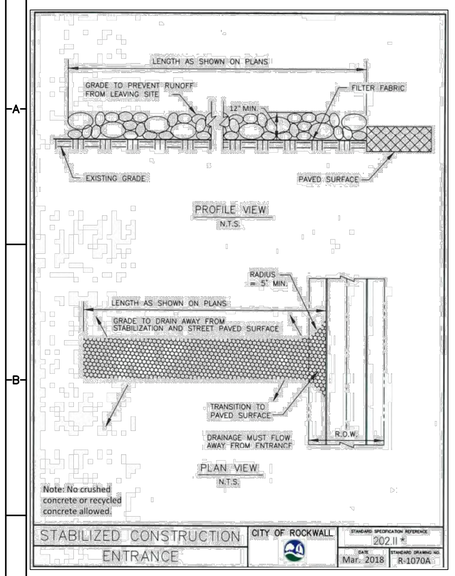
RayburnElectric COOPERATIVE
r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

STATE OF TEXAS
FRANK A. POLMA
80274
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY FRANK A. POLMA, P.E. 80274 ON 8/04/2025. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

JOB NO. 3036-21	DESIGN BY JMJ		
CREATED	CODE		
PLOTTED 3/16/2026	CHECKED BY RDE		
LAST UPDATE BY			
DRAWN: JMJ	SCALE: AS NOTED		
CHECKED:	DRAWING NO.: ISR-1009-3	ISSUE:	
APPROVED:			
FILENAME:			

REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032
SWPPP EROSION CONTROL PLAN

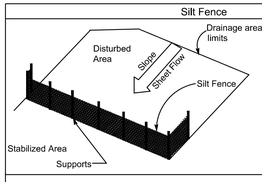


STABILIZED CONSTRUCTION ENTRANCE GENERAL NOTES:

1. STONE SHALL BE 4 TO 6 INCH DIAMETER COARSE AGGREGATE.
2. MINIMUM LENGTH SHALL BE 50 FEET AND WIDITH 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 | CITY OF ROCKWALL | STANDARD SPECIFICATION REFERENCE 2021 | DATE Mar. 2018 | STANDARD DRAWING NO. R-1070B

Silt Fence



DESCRIPTION
A silt fence consists of geotextile fabric supported by wire mesh netting or other backing stretched between metal posts with lower edge of the fabric securely embedded six-inches in the soil. The fence is typically located downstream of disturbed areas to intercept runoff in the form of sheet flow. A silt fence provides both filtration and time for sediment settling by reducing the velocity of the runoff.

PRIMARY USE
Silt fence is normally used as perimeter control located downstream of disturbed areas. It is only feasible for non-concentrated, sheet flow conditions. If it becomes necessary to place a silt fence where concentrated flows may be experienced (e.g. where two silt fences join at an angle, or across minor channels or gullies), it will be necessary to reinforce the silt fence at that area by a rock berm or sand bag berm, or other structural measures that will support the silt fence.

APPLICATIONS
Silt fence is an economical means to treat overland, non-concentrated flows for all types of projects. Silt fences are used as perimeter control devices for both site developers and linear (roadway) type projects. They are most effective with coarse to silty soil types. Due to the potential of clogging and limited effectiveness, silt fence should be used with caution in areas that have predominantly clay soil types. In this latter instance a soils engineer or soil scientist should confirm the suitability of silt fence for that application.

DESIGN CRITERIA
- ☐ Fences are to be constructed along a line of constant elevation (along a contour line) where possible.
- ☐ Maximum drainage area shall be 0.25 acre per 100 linear feet of silt fence.
- ☐ Maximum flow to any 20 foot section of silt fence shall be 1 CFS.
- ☐ Maximum distance of flow to silt fence shall be 200 feet or less. If the slope exceeds 10 percent the flow distance shall be less than 50 feet.
- ☐ Maximum slope adjacent to the fence shall be 2:1.
- ☐ If 50% or less soil, by weight, passes the U.S. Standard sieve No. 200, select the apparent opening size (A.O.S.) to retain 85% of the soil.
- ☐ If 85% or more of soil by weight, passes the U.S. Standard sieve No. 200, silt fence shall not be used unless the soil mass is evaluated and deemed suitable by a soil scientist or geotechnical engineer concerning the erodibility of the soil mass, dispersive characteristics, and the potential grain-size characteristics of the material that is likely to be eroded.
- ☐ Stone overflow structures or other outlet control devices shall be installed at all low points along the fence or spaced at approximately 300 feet if there is no apparent low point.
- ☐ Filter stone for overflow structure shall be 1-1/2" washed stone containing no fines. Angular shaped stone is preferable to rounded shapes.
- ☐ Silt fence fabric must meet the following minimum criteria:
  - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 90-lbs.
  - Puncture Rating, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 60-lbs.
  - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 280-psi.
  - Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening size of a Geotextile, U.S. Sieve No. 30 or Smaller.
  - Ultraviolet Resistance, ASTM D4355. Minimim 70 Percent.
- ☐ Fence posts shall be galvanized steel and may be T-section or L-section, 1.3 pounds per linear foot minimum, and 4 feet in length minimum.
- ☐ Silt fence shall be supported by galvanized steel wire fence fabric as follows:
  - 4"x4" mesh size, W1.4/1.4, minimum 14-gauge wire fence fabric;
  - Hog wire, 12 gauge wire, small openings installed at bottom of silt fence;
  - Standard 2"x2" chain link fence fabric; or
  - Other welded or woven steel fabrics consisting of equal or smaller spacing as that listed herein and appropriate gauge wire to provide support.
- ☐ A-6-inch wide trench is to be cut 6 inches deep at the toe of the fence to allow the fabric to be laid below the surface and backfilled with compacted earth or gravel to prevent bypass of runoff under the fence. Fabric shall overlap at abutting ends a minimum of 3 feet and shall be joined such that no leakage or bypass occurs.
- ☐ Sufficient room for the operation of sediment removal equipment shall be provided between the silt fence and other obstructions in order to properly maintain the fence.
- ☐ The ends of the fence shall be turned upstream to prevent bypass of storm water.

LIMITATIONS
Minor ponding will likely occur at the upstream side of the silt fence, which could result in minor localized flooding. Silt fences are not intended for use as check dams in swales or low areas subject to concentrated flow. Silt fences shall not be used where soil conditions prevent a minimum toe-in depth of 6 inches or installation of support posts to a depth of 12 inches.

Silt fence can interfere with construction operation; therefore planning of access routes onto the site is critical. Silt fence can fail structurally under heavy storm flows, creating maintenance problems and reducing the effectiveness of the system.

MAINTENANCE REQUIREMENTS
Silt fence should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) for buildup of excess sediment, undercutting, sags, and other failures. Sediment should be removed when it reaches approximately one-half the height of the fence. In addition, determine the source of excess sediment and implement appropriate BMPs to control the erosion. If the fabric becomes damaged or clogged, it should be repaired or replaced as necessary.

Applications: Perimeter Control; **Slope Protection**; **Sediment Trapping**; Channel Protection; Temporary Stabilization; Permanent Stabilization; Waste Management; Housekeeping Practices

Targeted Constituents: ● Sediment; ○ Nutrients Toxic Materials; ○ Oil & Grease; ◒ Floatable Materials; ○ Other Construction Wastes

Implementation Requirements: ◒ Capital Costs; ● Maintenance; ○ Training; ◒ Suitability for Slopes > 5%

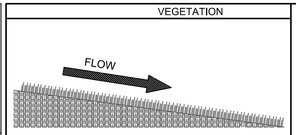
Legend: ● Significant Impact; ◒ Medium Impact; ○ Low Impact; ? Unknown or Questionable Impact

Fe=0.75

S-1

North Central Texas Council of Governments

VEGETATION



DESCRIPTION
Vegetation, as a Best Management Practice, is the sowing or sodding of annual grasses, small grains, or legumes to provide interim and permanent vegetative stabilization for disturbed areas.

PRIMARY USE
Vegetation is used as a temporary or permanent stabilization technique for areas disturbed by construction. As a temporary control, vegetation is used to stabilize stockpiles and barren areas that are inactive for long periods of time. As a permanent control, grasses and other vegetation provide good protection from erosion along with some filtering for overland runoff. Subjected to acceptable runoff velocities, vegetation can provide a positive method of permanent storm water management as well as a visual amenity to the site.

Other BMPs may be required to assist during the establishment of vegetation. These other techniques include erosion control matting, swales, and dikes to direct flow around newly seeded areas and proper grading to limit runoff velocities during construction.

APPLICATIONS
Vegetation effectively reduces erosion in swales, stockpiles, berms, mild to medium slopes, and along roadways. Vegetative strips can provide some protection when used as a perimeter control for utility and site development construction.

In many cases, the initial cost of temporary seeding may be high compared to tarps or covers for stockpiles or other barren areas subject to erosion. This initial cost should be weighed with the amount of time the area is to remain inactive, since maintenance cost for vegetated areas is much less than most structural controls.

DESIGN CRITERIA
Surface Preparation
- ☐ Interim or final grading must be completed prior to seeding or sodding.
- ☐ Install all necessary erosion structures such as dikes, swales, diversions, etc. prior to seeding or sodding.
- ☐ When establishing vegetation from seed, groove or furrow slopes steeper than 3:1 on the contour line before seeding.

Applications: Perimeter Control; **Slope Protection**; **Sediment Trapping**; **Channel Protection**; **Temporary Stabilization**; **Permanent Stabilization**; Waste Management; Housekeeping Practices

Targeted Constituents: ● Sediment; ◒ Nutrients Toxic Materials; ○ Oil & Grease; ○ Floatable Materials; ○ Other Construction Wastes

Implementation Requirements: ◒ Capital Costs; ◒ Maintenance; ○ Training; ● Suitability for Slopes > 5%

Legend: ◒ Significant Impact; ◒ Medium Impact; ○ Low Impact; ? Unknown or Questionable Impact

Fe=0.90

E-4

North Central Texas Council of Governments

VEGETATION

VEGETATION

RECOMMENDED GRASS MIXTURE FOR TEMPORARY EROSION CONTROL:

SEASON	COMMON NAME	RATE (LBS/ACRE)
Aug 15 - Nov 30	Tall Fescue Western Wheat Grass Wheat (Red, Winter)	4.0 5.0 30.0
May 1 - Aug 31	Foxtail Millet	30.0
Feb 15 - May 31 Sep 1 - Dec 31	Annual Rye	20.0

PERMANENT VEGETATION
Grass seed for permanent vegetation can be sown at the same time as seeding for temporary (annual) vegetation. Drought tolerant native vegetation is recommended rather than exotics as a long-term water conservation measure. Native grasses can be planted as seed or placed as sod. Buffaloe 609, for example is a hybrid grass that is placed as sod. Fertilizers are not normally used to establish native grasses, but mulching is effective in retaining soil moisture for the native plants.

RECOMMENDED NATIVE GRASSES FOR PERMANENT EROSION CONTROL

GRASS		RATE
Buffaloe Grass	Full Turf Application	3-4 lbs/1000 sqft
Blue Grama	Full Turf Application	2 lbs/1000 sqft
Side Oats Grama	Applied with other native seed	¼ lb/1000 sqft

LIMITATIONS
Vegetation is not appropriate for areas subjected to heavy pedestrian or vehicular traffic. As a temporary technique, vegetation may be costly when compared to other techniques. Vegetation may require a period of days to weeks before becoming established. Lack of water and lack of or improper use of soil amendments (compost, fertilizer, etc.) will usually result in poor turf establishment. Alternate erosion control (e.g. mulching, sodding vegetative strips, etc.) should be used until vegetation can be established.

Vegetation is not appropriate for rock, gravel or coarse-grained soils unless 4 to 6 inches of topsoil is applied.

MAINTENANCE REQUIREMENTS
Protect newly seeded areas from excessive runoff and traffic until vegetation is established. A watering and fertilizing schedule will be required as part of the SWPPP to assist in the establishment of the vegetation. Vegetation should be inspected regularly (at least as often as required by the TPDES Construction General Permit) to ensure that the plant material is established properly and remains healthy. Bare spots shall be reseeded and/or protected from erosion by mulch or other BMP. Accumulated sediment deposited by runoff should be removed to prevent smothering of the vegetation. In addition, determine the source of excess sediment and implement appropriate BMPs to control the erosion.

Applications: Perimeter Control; **Slope Protection**; **Sediment Trapping**; **Channel Protection**; **Temporary Stabilization**; **Permanent Stabilization**; Waste Management; Housekeeping Practices

Targeted Constituents: ● Sediment; ◒ Nutrients Toxic Materials; ○ Oil & Grease; ○ Floatable Materials; ○ Other Construction Wastes

Implementation Requirements: ◒ Capital Costs; ◒ Maintenance; ○ Training; ● Suitability for Slopes > 5%

Legend: ◒ Significant Impact; ◒ Medium Impact; ○ Low Impact; ? Unknown or Questionable Impact

Fe=0.40

S-7

North Central Texas Council of Governments

VEGETATION

- ☐ Provide 4-6 inches of topsoil over rock, gravel or otherwise unsuitable soils. Poor quality topsoil should be amended with compost before applying seed or sod. Amendment should be three parts of topsoil to one part compost by volume thoroughly blended.
- ☐ Seed bed should be well pulverized, loose and uniform.

Plant Selection, Fertilization and seeding
- ☐ Use only high quality, USDA certified seed.
- ☐ Use an appropriate species or species mixture adapted to local climate, soil conditions and season as shown below, or consult with the local office of the Natural Resource Conservation Service (NRCS) or Engineering Extension service as necessary for selection of proper species and application technique in this area.
- ☐ Seeding rate should be in accordance with the table below or as recommended by the NRCS or Engineering Extension service.
- ☐ Fertilizer shall be applied according to the manufacturer's recommendation with proper spreader equipment. Typical application rate for 10-10-10 grade fertilizer is 10 lbs, per 1,000 ft.²
- ☐ If hydro-seeding is used, do not mix seed and fertilizer more than 30 minutes before application.
- ☐ Evenly apply seed using cyclone seeder, seed drill, cultipacker, terraseeding, or hydroseeder.
- ☐ Provide adequate water to aid in establishment of vegetation.
- ☐ Use appropriate mulching techniques where necessary, especially during cold periods of the year.

Sodding
- ☐ Sod shall be St. Augustine grass, common bermudagrass, buffalograss, an approved hybrid of common Bermudagrass or an approved zoysiagrass.
- ☐ The sod should be mowed prior to sod cutting so that the height of the grass shall not exceed 2-inches and should not be harvested or planted when its moisture condition is so excessively wet or dry that its survival shall be affected.
- ☐ Sod shall be planted within 3-days after it is excavated.
- ☐ In areas subject to direct sunlight, pre-moisten prepared sod bed by watering immediately prior to placing sod.
- ☐ Sodded areas shall be thoroughly watered immediately after they are planted.

ADDITIONAL GUIDANCE
- ☐ Establishing a good vegetative cover is dependent of the season of the year. Projects that commence in the fall of the year may not be candidates for vegetation used as a BMP.
- ☐ Where vegetation is used in swales and channels it may be necessary to use sod, rather than seeding, to establish an erosion resistant surface to accommodate rainfall runoff flows.
- ☐ Where vegetation is used for perimeter control, the use of sod is necessary for a fifteen-foot width.
- ☐ Mulch should be used to enhance vegetative growth, in that mulch protects seeds from heat, prevents soil moisture loss, and provides erosion protection until the vegetation is established.
- ☐ Fertilizers have both beneficial and adverse effects. Fertilizers provide nutrients to the vegetation, but also fertilizers are a source of nutrients to streams and lakes. In this latter regard they are a pollutant. The use of native vegetation rather than exotics reduces the need of fertilizer. Organic fertilizers are generally preferred over chemical fertilizers from the standpoint of environmental conditions.
- ☐ Steep slopes represent a problem for establishing vegetation. Bonded Fiber Matrix or Mechanically Bonded Fiber Matrix products applied with a tackifier are useful for establishing vegetation on slopes.

TEMPORARY VEGETATION
The table on the following page lists recommended plant species for the North Central Texas region depending on the season for planting.

DUST CONTROL

DESCRIPTION
Dust control includes those measures necessary to prevent wind transport of dust from disturbed soil surfaces onto roadways, drainage ways, and surface waters.

PRIMARY USE
Dust control is applied in areas (including roadways) subject to surface and air movement to dust where on-site and off-site impacts to roadways, drainage ways, or surface waters are likely.

DESIGN CRITERIA
- ☐ Vegetative or mulch areas that will not receive vehicle traffic. In areas where planting, mulching, or paving is impractical, apply gravel or landscaping rock.
- ☐ Limit dust generation by clearing only those areas where immediate activity will take place, leaving the remaining area(s) in the original condition, if stable. Maintain the original cover as long as practicable.
- ☐ Construct natural or artificial windbreaks or windscreens. These may be designed as enclosures for small dust sources.
- ☐ Sprinkle the site with water until dampened sufficiently to prevent dust and repeat as needed. Do not apply water in quantities to cause runoff.
- ☐ Irrigation water can be used for dust control. Irrigation systems should be installed as a first step on sites where dust control is a concern.

SPECIFICATIONS
No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction - North Central Texas Council of Governments.

Applications: Perimeter Control; Slope Protection; Sediment Trapping; Channel Protection; Temporary Stabilization; Permanent Stabilization; Waste Management; Housekeeping Practices

Targeted Constituents: ● Sediment; ○ Nutrients/Toxic Materials; ○ Oil & Grease; ○ Floatable Materials; ○ Other Construction Wastes

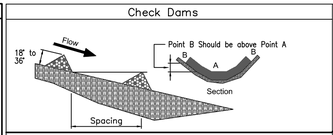
Implementation Requirements: ○ Capital Costs; ○ Maintenance; ● Training; ○ Suitability for Slopes > 5%

Legend: ● Significant Impact; ◒ Medium Impact; ○ Low Impact; ? Unknown or Questionable Impact

E-8

North Central Texas Council of Governments

Check Dams



DESCRIPTION
Check dams are small barriers consisting of rock, sand bag or earth berms placed across a drainage swale or ditch. They reduce the velocity of small concentrated flows, provide a limited barrier for sediment and help disperse concentrated flows, reducing potential erosion.

PRIMARY USE
Check dams are used for long drainage swales or ditches to reduce erosive velocities. They are typically used in conjunction with other channel protection techniques such as vegetation lining and turf reinforcement mats. Check dams provide limited treatment to sediment-laden flows. They are more useful in reducing flow to acceptable levels for other techniques.

APPLICATIONS
Check dams are typically used early in construction in swales for long linear projects such as roadways. They can also be used in short swales with a steep slope to reduce unacceptable velocities. Check dams shall not be used in live stream channels

DESIGN CRITERIA
- ☐ Check dams should be placed at a distance and height to allow small pools to form between each one. Typically, dam height should be between 18" and 36". Dams should be spaced such that the top of the downstream dam should be at the same elevation as the toe of the upstream dam.
- ☐ Major flows (greater than 2 year design storm) must pass the check dam without causing excessive upstream flooding.
- ☐ Check dams should be used in conjunction with other sediment reduction techniques prior to releasing flow offsite.
- ☐ Use geotextile filter fabric under check dams exceeding 18 inches in height. The fabric shall meet the material specified for the Stone Outlet Sediment Trap, S-5.

Rock Check Dams
- ☐ Stone shall be well graded with size range from 1-1/2 to 3-1/2 inches in diameter depending on expected flows.
- ☐ Rock check dams should be triangular in cross section with side slopes of 1:1 or flatter on the upstream side and 2:1 or flatter on the downstream side.

Sand Bag Dams
- ☐ Sand bag check dams should have a maximum flow through rate of 0.1 cfs per square foot of surface with a minimum top width of 16 inches and bottom width of 48 inches. Bags should be filled with coarse sand, pea gravel, or filter stone that is clean and free of deleterious material.
- ☐ Bag length shall be 24-inches to 30-inches, width shall be 16-inches to 18-inches and thickness shall be 6-inches to 8-inches and having an approximate weight of 40-pounds.
- ☐ Bag material shall be polypropylene, polyethylene, polyamide or cotton burlap woven fabric, minimum unit weight 4-ounces-per-square-yard, Mullen burst strength exceeding 300-psi as determined by ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method , and ultraviolet stability exceeding 70-percent.
- ☐ PVC pipes may be installed through the sand bag dam near the top to allow for controlled flow through the dam. Pipe should be schedule 40 or heavier polyvinyl chloride (PVC) having a nominal internal diameter of 4 inches.

LIMITATIONS
Minor ponding will occur upstream of the check dams. For heavy flows or high velocity flows, extensive maintenance or replacement of the dams will be required.

Care must be used when taking out rock check dams in order to remove as much rock as possible. Loose rock can create an extreme hazard during mowing operations once the area has been stabilized.

MAINTENANCE REQUIREMENTS
Check dams should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). Silt must be removed when it reaches approximately 1/3 the height of the dam or 12", whichever is less.

SPECIFICATION
Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction - North Central Texas Council of Governments, Section 201.9 Rock Dam and Item 201.11Sand Bag Dam.

Applications: Perimeter Control; Slope Protection; Sediment Trapping; **Channel Protection**; Temporary Stabilization; Permanent Stabilization; Waste Management; Housekeeping Practices

Targeted Constituents: ● Sediment; ○ Nutrients Toxic Materials; ○ Oil & Grease; ◒ Floatable Materials; ○ Other Construction Wastes

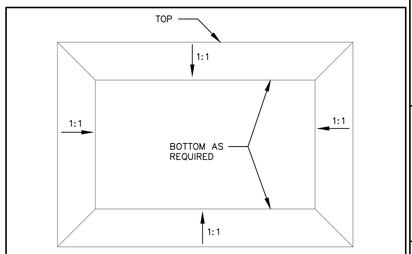
Implementation Requirements: ◒ Capital Costs; ◒ Maintenance; ○ Training; ○ Suitability for Slopes > 5%

Legend: ● Significant Impact; ◒ Medium Impact; ○ Low Impact; ? Unknown or Questionable Impact

Fe=0.40

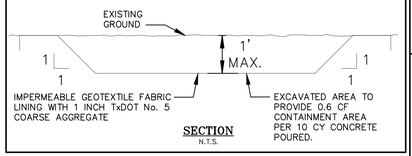
S-7

North Central Texas Council of Governments

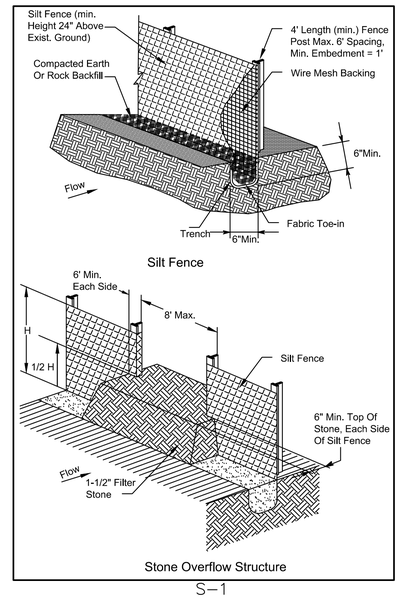


PLAN
N.T.S.

SUGGESTED CONCRETE WASHOUT AREA



SECTION
N.T.S.



S-1

RECORD DRAWING

NOTE: THIS RECORD DRAWING IS A COMPILATION OF THE ORIGINAL SEALED ENGINEERING DRAWING FOR THIS PROJECT, INFORMATION FURNISHED BY THE CONTRACTOR, AND FIELD SURVEY VERIFICATION. TO THE BEST OF OUR KNOWLEDGE R-DELTA ENGINEERS, INC. STATES THAT THIS PLAN IS AS-BUILT.

03/16/2026
FRANK A. POLMA, P.E. TX #80274
R/DELTA ENGINEERS, INC.
TBPE FIRM NO F-001515

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REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE

Rayburn Electric Cooperative
r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

STATE OF TEXAS — FRANK A. POLMA — 80274 — LICENSED PROFESSIONAL ENGINEER

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JOB NO. 3036-21	DESIGN BY JMJ		
CREATED	CODE		
PLOTTED 3/16/2026	CHECKED BY RDE		
LAST UPDATE BY			
DRAWN: JMJ	SCALE: NONE		
CHECKED:	DRAWING NO.: ISR-1009-4	ISSUE:	
APPROVED:			
FILENAME:			

REC CAMPUS EXPANSION
INDOOR SHOOTING RANGE
MIMS RD
ROCKWALL, TX 75032
SWPPP EROSION AND SEDIMENT CONTROL DETAILS

Debris and Trash Management

DESCRIPTION
Large volumes of debris and trash are often generated at construction sites including: packaging, pallets, wood waste, concrete waste, soil, electrical wiring, cuttings, and a variety of other materials. There are several techniques and procedures to minimize the potential of storm water contamination from solid waste through appropriate storage and disposal practices. Recycling of construction debris also reduces the volume of material to be disposed of and associated costs.

PRIMARY USE
Debris and trash management should be a part of all construction practices. By limiting the trash and debris on site, storm water quality is improved along with reduced clean up requirements at the completion of the project.

APPLICATIONS
Solid waste management for construction sites is based on proper storage and disposal practices by construction workers and supervisors. Key elements of the program are education and modification of improper disposal habits.
Cooperation and vigilance is required on the part of supervisors and workers to ensure that the recommendations and procedures are followed. Following are lists describing the targeted materials and recommended procedures:

- ☐ Construction (and Demolition) Debris
  - Dimensional lumber
  - Miscellaneous wood (pallets, plywood, etc)
  - Copper (pipe and electrical wiring)
  - Miscellaneous metal (studs, pipe, conduit, sheathing, nails, **etc)**
  - Insulation
  - Concrete, brick, and mortar
  - Shingles
  - Roofing materials
  - Gypsum board
- ☐ Trash
  - Paper and cardboard (packaging, containers, wrappers)
  - Plastic (packaging, bottles, containers)
  - Styrofoam (cups, packing, and forms)
  - Food and beverage containers
  - **Food waste**

Storage Procedures
- ☐ Wherever possible, minimize production of debris and trash.
- ☐ Designate a foreman or supervisor to oversee and enforce proper debris and trash procedures.
- ☐ Instruct construction workers in proper debris and trash storage and handling procedures.
- ☐ Segregate potentially hazardous waste from non-hazardous construction site debris.
- ☐ Segregate recyclable construction debris from other non-recyclable materials.
- ☐ Keep debris and trash under cover in either a closed dumpster or other metal or plastic enclosed trash container that limits contact with rain and runoff and prevents light materials from blowing out.
- ☐ Store waste materials away from drainage ditches, swales and catch basins**.**
- ☐ Do not allow trash containers to overflow**.**
- ☐ Do not allow waste materials to accumulate on the ground.
- ☐ Prohibit littering by workers and visitors.
- ☐ Police site daily for litter and debris.
- ☐ Enforce solid waste handling and storage procedures.

Disposal Procedures
- ☐ If feasible, recycle construction and demolition debris such as wood, metal, and concrete.
- ☐ General construction debris may be hauled to a licensed construction debris landfill (typically less expensive than a sanitary landfill).
- ☐ Use waste and recycling haulers/facilities approved by the local jurisdiction.

Education
- ☐ Educate all workers on solid waste storage and disposal procedures.
- ☐ Instruct workers in identification of solid waste and hazardous waste**.**
- ☐ Have regular meetings to discuss and reinforce disposal procedures (incorporate in regular **safety seminars).**
- ☐ Clearly mark on all debris and trash containers which materials are acceptable.

Quality Control
- ☐ Foreman and/or construction supervisor shall monitor on-site solid waste storage and **disposal procedures.**
- ☐ Discipline workers who repeatedly violate procedures**.**

Requirements
- ☐ Job-site waste handling and disposal education and awareness program.
- ☐ Compliance by workers**.**
- ☐ Sufficient and appropriate waste storage containers**.**
- ☐ Timely removal of stored solid waste materials.
- ☐ Training workers and monitoring compliance.

LIMITATIONS
Only addresses non-hazardous solid waste.
One part of a comprehensive construction site management program.

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ● Nutrients Toxic Materials
- ○ Oil & Grease
- ● Floatable Materials
- ● Other Construction Wastes

Implementation Requirements
- ◒ Capital Costs
- ◒ Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M–1

North Central Texas Council of Governments

Chemical Management

DESCRIPTION
Chemical management addresses the problem of storm water polluted with chemical pollutants through spills or other forms of contact. The objective of the chemical management is to minimize the potential of storm water contamination from construction chemicals through appropriate recognition handling, storage, and disposal practices.

It is not the intent of chemical management to supersede or replaced normal site assessment and remediation procedures**.** Significant spills and/or contamination warrant immediate response by trained professionals. Suspected job-site contamination should be immediately reported to regulatory authorities and protective actions taken. Significant spills should be reported to the National Response Center (NRC) at (800) 424-8802.

PRIMARY USE
These management practices along with applicable OSHA and EPA guidelines should be incorporated at all construction sites that use or generate hazardous wastes. Many chemicals such as fuel, oil, grease, fertilizer, and pesticide are present at most construction sites.

INSTALLATION, APPLICATION AND DISPOSAL CRITERIA
The chemical management techniques presented here are based on proper recognition, handling, and disposal practices by construction workers and supervisors. Key elements are education, proper disposal practices, as well as provisions for safe storage and disposal. Following are lists describing the targeted materials and recommended procedures:

- ☐ Targeted Chemical Materials
  - Paints
  - Solvents
  - Stains
  - Wood preservatives
  - Cutting oils
  - Greases
  - Roofing tar
  - Pesticides, herbicides, & fertilizer
  - Fuels & lube oils
  - Antifreeze

Storage Procedures
- ☐ Wherever possible, minimize use of hazardous materials**.**
- ☐ Minimize generation of hazardous wastes on the job-site
- ☐ Segregate potentially hazardous waste from non-hazardous construction site debris**.**
- ☐ Designate a foreman or supervisor to oversee hazardous materials handling procedures.
- ☐ Keep chemicals in appropriate containers (closed drums or similar) and under cover.
- ☐ Store chemicals away from drainage ditches, swales and catch basins**.**
- ☐ Use containment berms in fueling and maintenance areas and where the potential for spills **is high.**

Waste Handling
- ☐ Ensure that adequate hazardous waste storage volume is available.
- ☐ Ensure that hazardous waste collection containers are conveniently located.
- ☐ Do not allow potentially hazardous waste materials to accumulate.
- ☐ Enforce hazardous waste handling and disposal procedures.
- ☐ Clearly mark on all hazardous waste containers which materials are acceptable for the **container.**

Disposal Procedures
- ☐ Ensure that adequate cleanup and containment materials are available onsite.
- ☐ Regularly schedule hazardous waste removal to minimize on-site storage.
- ☐ Use only licensed hazardous waste haulers.

Education
- ☐ Instruct workers on safety procedures for construction site chemical storage**.**
- ☐ Instruct workers in identification of chemical pollutants.
- ☐ Ensure that workers are trained in procedures for spill prevention and response**.**
- ☐ Educate workers of potential dangers to humans and the environment from chemical **pollutants.**
- ☐ Educate all workers on chemical storage and disposal procedures.
- ☐ Have regular meetings to discuss and reinforce identification, handling, and disposal procedures (incorporate in regular safety seminars).
- ☐ Establish a continuing education program to indoctrinate new employees.

Quality Assurance
- ☐ Foreman and/or construction supervisor shall monitor on-site chemical storage and disposal procedures.
- ☐ Educate and if necessary, discipline workers who violate procedures.
- ☐ Ensure that the hazardous waste disposal contractor is reputable and licensed.

Requirements
- ☐ Job-site chemical and hazardous waste handling and disposal education and awareness **program.**
- ☐ Commitment by management to implement chemical storage and hazardous waste management practices.
- ☐ Compliance by workers.
- ☐ Sufficient and appropriate chemical and hazardous waste storage containers.
- ☐ Timely removal of stored hazardous waste materials.

Cost
- ☐ Possible modest cost impact for additional chemical storage containers.
- ☐ Small cost impact for training and monitoring.
- ☐ Potential cost impact for hazardous waste collection and disposal by licensed hauler-actual cost depends on type of material and volume.

LIMITATIONS
This practice is not intended to address site-assessments and pre-existing contamination. Major contamination, large spills and other serious hazardous waste incidents require immediate response from specialists.

Demolition activities and potential pre-existing materials, such as lead and asbestos, are not addressed by this program. Site-specific information on plans is necessary.

Contaminated soils are not addressed.

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ● Nutrients Toxic Materials
- ● Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

Implementation Requirements
- ◒ Capital Costs
- ◒ Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M–2

North Central Texas Council of Governments

Concrete Waste Management

DESCRIPTION
Concrete waste at construction sites comes in two forms; 1) excess fresh concrete mix including truck and equipment washing, and 2) concrete dust and concrete debris resulting from demolition. Both forms have the potential to impact water quality through storm water runoff contact with the waste.

PRIMARY USE
Concrete waste is present at most construction sites. This BMP should be utilized at sites in which concrete waste is present.

APPLICATIONS
A number of water quality parameters can be affected by introduction of concrete - especially fresh concrete. Concrete affects the pH of runoff, causing significant chemical changes in water bodies and harming aquatic life**.** Suspended solids in the form of both cement and aggregate dust are also generated from both fresh and demolished concrete waste**.**

Unacceptable Waste Concrete Disposal Practices
- ☐ Dumping in vacant areas on the job-site.
- ☐ Illicit dumping off-jobsite**.**
- ☐ Dumping into ditches or drainage facilities.

Recommended Disposal Practices
- ☐ Avoid unacceptable disposal practices listed above.
- ☐ Develop pre-determined, safe concrete disposal areas**.**
- ☐ Provide a washout area with a minimum of 6 cubic feet of containment area volume for every 10 cubic yards of concrete poured**.**
- ☐ Never dump waste concrete illicitly or without property owners knowledge and consent.
- ☐ Overflow of washdown water shall be discharged in an area protected by one or more sediment removal BMPs and shall be done in a manner that does not result in a violation of groundwater or surface water quality standards.

Education
- ☐ Drivers and equipment operators should be instructed on proper disposal and equipment washing practices (see above).
- ☐ Supervisors must be made aware of the potential environmental consequences of improperly handled concrete waste.

Enforcement
- ☐ The construction site manager or foreman must ensure that employees and pre-mix companies follow proper procedures for concrete disposal and equipment washing.
- ☐ Employees violating disposal or equipment cleaning directives must be re-educated or disciplined if necessary.

Demolition Practices
- ☐ Monitor weather and wind direction to ensure concrete dust is not entering drainage structures and surface waters.
- ☐ Where appropriate, construct sediment traps or other types of sediment detention devices downstream of demolition activities.

Requirements
- ☐ Use pre-determined disposal sites for waste concrete.
- ☐ Prohibit dumping waste concrete anywhere but pre-determined areas**.**
- ☐ Assign pre-determined truck and equipment washing areas.
- ☐ Educate drivers and operators on proper disposal and equipment cleaning procedures**.**

Costs
- ☐ Minimal cost impact for training and monitoring.
- ☐ Concrete disposal cost depends on availability and distance to suitable disposal areas.
- ☐ Additional costs involved in equipment washing could be significant.

LIMITATIONS
Concrete waste management is one part of a comprehensive construction site waste management program.

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

Implementation Requirements
- ◒ Capital Costs
- ◒ Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M–3

North Central Texas Council of Governments

Concrete Sawcutting Waste Management

DESCRIPTION
Sawcutting of concrete pavement is a routine practice, necessary to control shrinkage cracking immediately following placement of plastic concrete. It is also used to remove curb sections and pavement sections for pavement repairs, utility trenches, and driveways. Sawcutting for joints involves sawing a narrow, shallow groove in the concrete, while sawcutting for removals is usually done full depth through the slab. Water is used to control saw blade temperature and to flush the detritus from the sawed groove. The resulting slurry of process water and fine particles and high pH must be properly managed.

A number of water quality parameters can be affected by introduction of concrete fines. Concrete affects the pH of runoff, causing significant chemical changes in water bodies and harming aquatic life. Suspended solids in the form of saw fines are also generated from sawcutting operations**.**

DESIGN CRITERIA
Slurry Collection
- ☐ During saw cutting operations, the slurry and cutting shall be continuously vacuumed to control the flow of water from the operation site.
- ☐ The slurry and cutting shall not be allowed to drain to the storm drain system, swale, stream or other water body.
- ☐ The slurry and cutting shall not be allowed to remain on the pavement to dry out**.**

Slurry Disposal
- ☐ Develop pre-determined, safe slurry disposal areas.
- ☐ Collected slurry and cuttings shall be discharged in an area protected by one or more sediment removal BMPs and shall be done in a manner that does not result in a violation of groundwater or surface water quality standards.
- ☐ Never dump waste illicitly or without property owner's knowledge and consent.
- ☐ Slurry may be disposed of in facilities designated for washdown of concrete trucks (see M-3, Concrete Waste Management).

MAINTENANCE
Project personnel should inspect the operations to assure that operators are diligent in controlling the water produced by the saw cutting activities. Following operations the pavement should be inspected to ensure that waste removal has been adequately performed.

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

Implementation Requirements
- ○ Capital Costs
- ◒ Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M–4

North Central Texas Council of Governments

Sanitary Facilities

DESCRIPTION
Facilities for collection and disposal of sanitary waste must be provided and properly managed to minimize the potential contamination of surface water with septic waste. Location of portable facilities away from storm drain systems and surface waters or containment is necessary in case of spills.

PROCEDURES
- ☐ Portable toilets must be provided if no permanent facilities are available.
- ☐ Locate portable toilets a minimum of 20 feet away from storm drain inlets, conveyance channels, or surface waters**.**
- ☐ If unable to meet 20-foot distance requirements, provide containment for portable toilets.
- ☐ Sanitary facilities must be provided on the site in close proximity to areas where people are working.
- ☐ Portable toilets should be regularly serviced.

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ● Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

Implementation Requirements
- ○ Capital Costs
- ◒ Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M–7

North Central Texas Council of Governments

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03/16/2026
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RaybornElectric COOPERATIVE

r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

STATE OF TEXAS
FRANK A. POLMA
80274
REGISTERED
PROFESSIONAL ENGINEER

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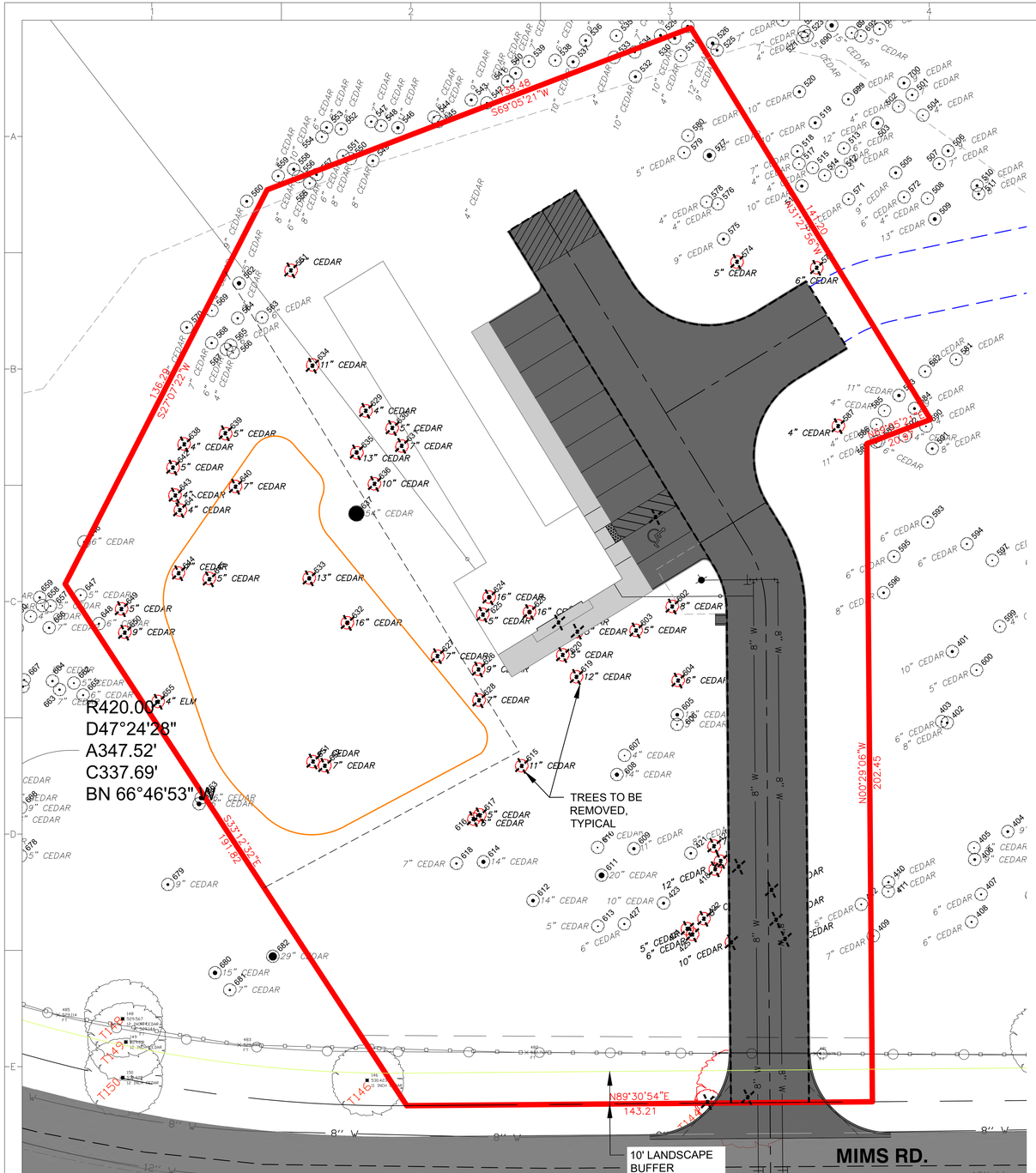
JOB NO. 3036–21 DESIGN BY JMJ
CREATED CODE
PLOTTED 3/16/2026 CHECKED BY RDE
LAST UPDATE BY

DRAWN: JMJ SCALE: NONE
CHECKED:
APPROVED:
FILENAME:
DRAWING NO.: **RP-1009-5**
ISSUE:

REC CAMPUS EXPANSION INDOOR SHOOTING RANGE

MIMS RD
ROCKWALL, TX 75032

SWPPP HOUSEKEEPING DETAILS



Site Tree Listing
Rayburn Electric Cooperative- Indoor Shooting Range
March 14, 2025

Location Key	Size DBH (inches)	Description	Common Name	Comments	Tree Designation				Removal Status	Replacement Caliper Inches
					Feature	Primary	Secondary	Non-Protected		
144	4		ELM			x			Remove	4
145	16		CEDAR				x		Remove	8
146	11		CEDAR				x		To Remain	
401	10		CEDAR					x	To Remain	
409	7		CEDAR					x	To Remain	
412	5		CEDAR					x	To Remain	
413	6		CEDAR					x	Remove	0
414	4		CEDAR					x	To Remain	
415	5		CEDAR					x	Remove	0
416	14		CEDAR				x		Remove	7
417	7		CEDAR					x	Remove	0
418	12		CEDAR				x		Remove	6
419	7		CEDAR					x	Remove	0
420	7		CEDAR					x	Remove	0
421	8		CEDAR					x	To Remain	
422	8		CEDAR					x	Remove	0
423	10		CEDAR					x	To Remain	
424	6		CEDAR					x	Remove	0
425	6		CEDAR					x	Remove	0
426	10		CEDAR					x	Remove	0
427	6.5		CEDAR					x	To Remain	
530	10		CEDAR					x	To Remain	
531	4		OAK				x		To Remain	
532	10		CEDAR					x	To Remain	
533	4		CEDAR					x	To Remain	
534	7		CEDAR					x	To Remain	
549	8		CEDAR					x	To Remain	
550	8		CEDAR					x	To Remain	
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557	8		CEDAR					x	To Remain	
560	9		CEDAR					x	To Remain	
561	7		CEDAR					x	Remove	0
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577	18		CEDAR				x		To Remain	
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583	11		CEDAR				x		To Remain	
584	9		CEDAR					x	To Remain	
585	4		CEDAR					x	To Remain	
586	4		CEDAR					x	To Remain	
587	4		CEDAR					x	Remove	0
588	11		CEDAR				x		To Remain	
589	6		CEDAR					x	To Remain	
601	7		CEDAR					x	Remove	0
602	7.5		CEDAR					x	Remove	0
603	5		CEDAR					x	Remove	0
604	6.5		CEDAR					x	Remove	0
605	12		CEDAR				x		To Remain	
606	5		CEDAR					x	To Remain	
607	4		CEDAR					x	To Remain	
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651	4		CEDAR					x	Remove	0
652	7		CEDAR					x	Remove	0
653	16		CEDAR				x		To Remain	
654	16		CEDAR				x		To Remain	
655	4		ELM			x			Remove	4
TOTAL	901									83.0

Proposed Tree Removal Listing
Rayburn Electric Cooperative- Indoor Shooting Range
March 14, 2025

Location Key	Size DBH (inches)	Description	Common Name	Comments	Tree Designation				Removal Status	Replacement Caliper Inches
					Feature	Primary	Secondary	Non-Protected		
144	4		ELM			x			Remove	4
145	16		CEDAR				x		Remove	8
413	6		CEDAR					x	Remove	0
415	5		CEDAR					x	Remove	0
416	14		CEDAR				x		Remove	7
417	7		CEDAR					x	Remove	0
418	12		CEDAR				x		Remove	6
419	7		CEDAR					x	Remove	0
420	7		CEDAR					x	Remove	0
422	8		CEDAR					x	Remove	0
424	6		CEDAR					x	Remove	0
425	6		CEDAR					x	Remove	0
426	10		CEDAR					x	Remove	0
561	7		CEDAR					x	Remove	0
573	6		CEDAR					x	Remove	0
574	5		CEDAR					x	Remove	0
587	4		CEDAR					x	Remove	0
601	7		CEDAR					x	Remove	0
602	7.5		CEDAR					x	Remove	0
603	5		CEDAR					x	Remove	0
604	6.5		CEDAR					x	Remove	0
615	11		CEDAR				x		Remove	5.5
616	6		CEDAR					x	Remove	0
617	5		CEDAR					x	Remove	0
619	12		CEDAR				x		Remove	6
620	5		CEDAR					x	Remove	0
621	5		CEDAR					x	Remove	0
622	5		CEDAR					x	Remove	0
623	16		CEDAR				x		Remove	8
624	16		CEDAR				x		Remove	8
632	16		CEDAR				x		Remove	8
633	13		CEDAR				x		Remove	6.5
634	11		CEDAR				x		Remove	5.5
635	13		CEDAR				x		Remove	6.5
636	10		CEDAR					x	Remove	0
638	4		CEDAR					x	Remove	0
639	5		CEDAR					x	Remove	0
640	7		CEDAR					x	Remove	0
641	4		CEDAR					x	Remove	0
642	5		CEDAR					x	Remove	0
643	4		CEDAR					x	Remove	0
644	7		CEDAR					x	Remove	0
645	5		CEDAR					x	Remove	0
649	5		CEDAR					x	Remove	0
650	9		CEDAR					x	Remove	0
651	4		CEDAR					x	Remove	0
652	7		CEDAR					x	Remove	0
655	4		ELM			x			Remove	4
TOTAL	410									83.0

TREE MITIGATION REQUIREMENTS
Site Trees Existing- See Tree Listing

Site Trees Removed- See Proposed Tree Removal Listing
58 Total Caliper inches to be removed that require mitigation

Tree Designation-
Non-Protected- 0 Caliper Inch required to replace
Secondary- 1/2" Caliper Inch per 1" Caliper removed required to replaced
Primary- 1" Caliper Inch per 1" Caliper removed required to replaced
Feature- 2" Caliper Inch per 1" Caliper removed required to replaced

Calculation-
Replacement Inches needed **83** , Replace with 4" Caliper Trees
83"/4"= 21 Trees Required

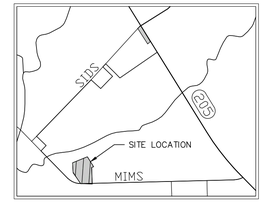
21 CANOPY TREES REQUIRED

21 CANOPY TREES PROVIDED

N

20 10 0 20

GRAPHIC SCALE IN FEET
SCALE: 1" = 20'



LEGEND

EXISTING TREES TO REMAIN

EXISTING TREES TO BE REMOVED

APPROVED:
I hereby certify that the above and foregoing site plan for a development in the City of Rockwall, Texas, was approved by the Planning & Zoning Commission of the City of Rockwall on the ___ day of _____, ____.

WITNESS OUR HANDS, this ___ day of _____, ____.

_____ _____
Planning & Zoning Commission, Chairman — Director of Planning and Zoning

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE
0	03/31/2025	BS	BS	BS	ISSUED FOR REVIEW

RayburnElectric COOPERATIVE
r.delta ENGINEERS
618 Main Street
Garland, TX 75040
Ph. (972) 494-5031
Fax (972) 487-2270
www.rdelta.com
TBPE No. F-1515

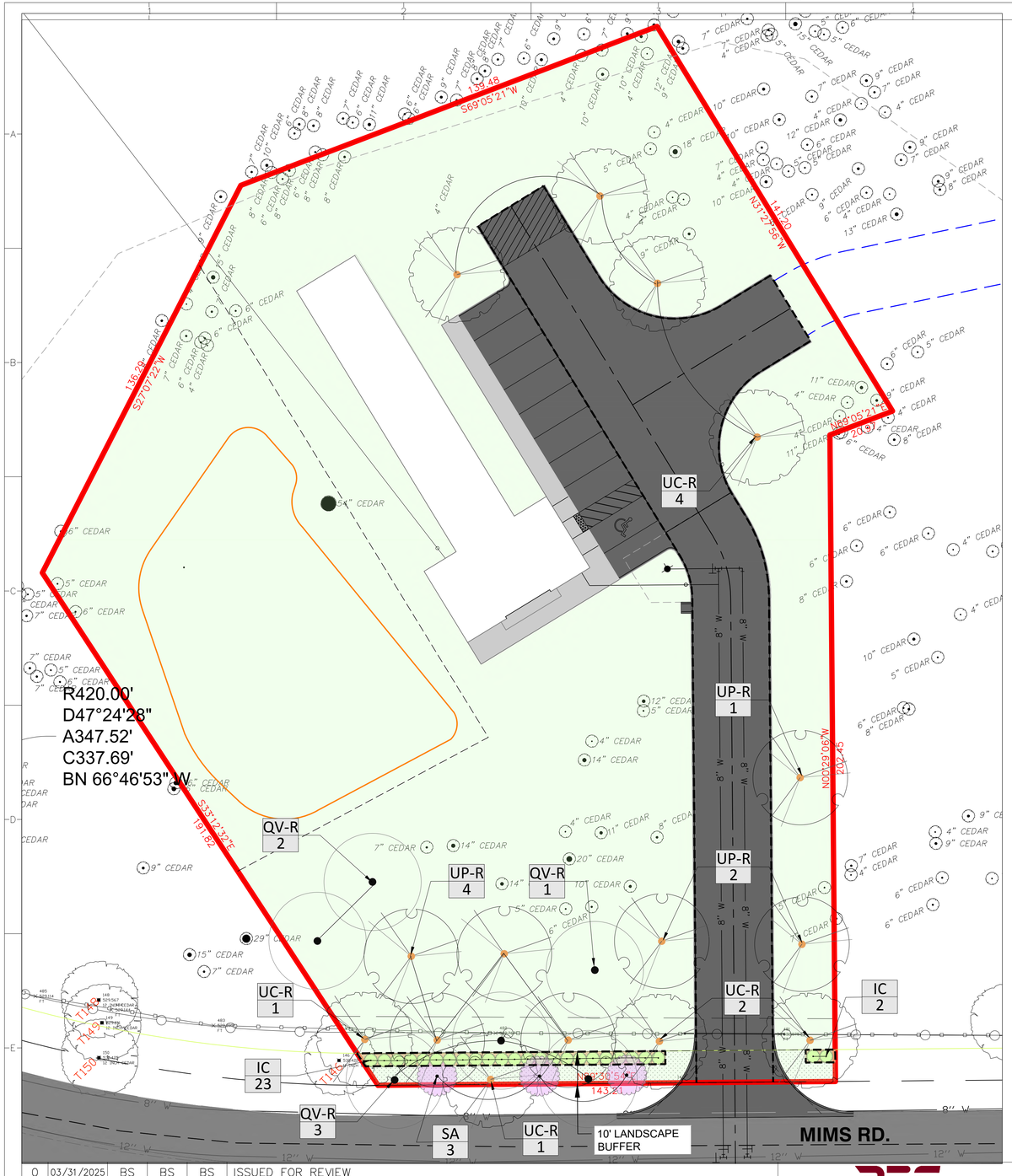
DUNKIN SIMS STOFFELS INC.

REGISTERED LANDSCAPE ARCHITECT ROBERT P. STOFFELS 1025 STATE OF TEXAS 4/1/25

JOB NO. 3036-21	DESIGN BY BS		
CREATED	CODE		
PLOTTED 3/31/2025	CHECKED BY BS		
LAST UPDATE BY			
DRAWN: MW	SCALE: AS NOTED		
CHECKED:	DRAWING NO.: LP-1	ISSUE: 0	
APPROVED:			
FILENAME:			

REC CAMPUS - INDOOR SHOOTING LANDSCAPE PLANS

TREESCAPE PLAN

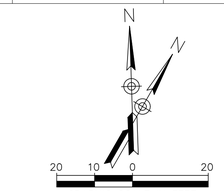


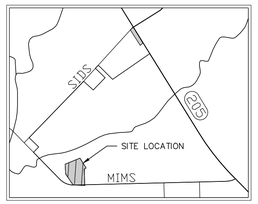
Plant Schedule

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
	UC	8	Ulmus crassifolia	Cedar Elm	65 gal.	4" Caliper, Min 12` Ht., 7' Spread
	UP	7	Ulmus parvifolia	Lacebark Elm	65 gal.	4" Caliper, Min 12` Ht., 7' Spread
	QV	6	Quercus virginiana	Live Oak	65 gal.	4" Caliper, Min 12` Ht., 7' Spread
	SA	3	Sophora affinis	Eve's Necklace	45 gal.	3" Caliper, Min 6` Ht., 4' Spread

SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
	IC	25	Ilex cornuta 'Burfordii Nana'	Dwarf Burford Holly	10 gal.	Cont.	4` O.C., Min. 3' Ht.

GROUND COVERS	CODE	QTY	BOTANICAL NAME	COMMON NAME	REMARKS
	Ber c11	45,975 s.f.	Tif Tuf Bermuda	Tif Tuf Bermuda Grass	Solid Sod
	Shd mul	425 s.f.		Shredded Hardwood Mulch	--





LEGEND

LO 3 — PLANT SYMBOL, REF. PLANT SCHEDULE; PLANT QUANITY

LO-R 3 — -R = REPLACEMENT TREE FOR MITIGATION REF. PLANT SCHEDULE; PLANT QUANITY

EXISTING TREES TO REMAIN

METAL EDGING @ PLANTING BED BORDER WITH TURF, QUANITY- 226 L.F.

NOTES

1. "The owner, tenant and their agent, if any, shall be jointly and severally responsible for the maintenance of all landscaping. All required landscaping shall be maintained in a neat and orderly manner at all times. This shall include mowing, edging, pruning, fertilizing, watering, weeding, and such activities common to the maintenance of landscaping"

2. "Landscape areas shall be kept free of trash, litter, weeds and other such material or plants not a part of the landscaping"

3. "No substitutions for plant materials without approval by the Director"

4. "The right-of-way adjacent to required landscape areas shall be maintained by the property owner in the same manner as the required landscape area. All driveways shall maintain site visibility. All plantings intended for erosion control will be maintained. The City may require revegetation to prevent erosion or slippage"

5. "All plant material shall be maintained in a healthy and growing condition as is appropriate for the season of the year. Plant materials which die shall be replaced with plant material of similar variety and size"

6. "When overhead or underground utilities are present, landscape plan alterations may be considered by the Director"

7. "All required landscape areas shall be provided with an automatic underground irrigation system with rain and freeze sensors and/or evapotranspiration (ET) weather-based controllers and said irrigation system shall be designed by a qualified professional and installed by a licensed irrigator"

8. "All trees are to be equipped with a bubbler irrigation system"

9. "Required landscaped open areas and disturbed soil areas shall be completely covered with living plant material"

10. "All streetscape furniture (benches, lampposts, trash receptacles, patio furniture, bike racks, etc.) shall be a chip and flake resistant metal, decorative, and generally black "storm cloud" or comparable in color"

11. "Excessive pruning of plant materials is prohibited. (e.g. topping crape myrtles, pruning "up" creating a carrot top")

12. "All transformers and mechanical equipment to be screened with evergreen shrubs, to be 2' at time of planting."

13. No Tree Planting within 5 feet of water/storm sewer lines.

LANDSCAPE REQUIREMENTS
Total Site Area - 61,277 SF = 1.41 Acres

Site Landscape Area
Total Site Landscape Area - 46,400 SF = 76% of Site

45,975 SF TURF PROVIDED
425 SF LANDSCAPE PLANTING BED PROVIDED

Landscape Buffer Components Street Frontage- Mims Rd.
Total (10' Wide) Required Landscape Buffer Area - 1,169 SF
Total (10' Wide) *Provided Landscape Buffer Area - 1,169 SF*

425 SF OF LANDSCAPE BED
744 SF OF TURF PROVIDED

Landscape Buffer Trees Street Frontage- Mims Rd.
Street Frontage Length - 143 LF
1 Canopy Tree per 50 LF of Street Frontage (Min.4" Cal.)
1 Accent Tree per 50 LF of Street Frontage (6' Ht. Min.)

3 CANOPY / 3 ACCENT TREES REQUIRED
3 CANOPY / 3 ACCENT TREES PROVIDED

Landscape Parking Trees
1 Canopy Tree/ 10 parking spaces
1 Tree within 80' of each parking space

1 TREE REQUIRED
4 TREES PROVIDED

IRRIGATION:
An automatic irrigation system will be installed by the Owner, to water the required landscape improvements. Irrigation plans to be provided.

NOTE:
Landscape Plans shall meet requirements in the Unified Development Code-Article 8 with exceptions granted to Owner.

Trees that are existing within the landscape buffer or limbs that enter into the landscape buffer shall be pruned by a certified arbortist. It shall be pruned to allow for sunlight to filter through the existing tree to facilitate success of newly planted trees.

TREE MITIGATION REQUIREMENTS
Site Trees Existing- See Tree Listing

Site Trees Removed- See Proposed Tree Removal Listing
58 Total Caliper inches to be removed that require mitigation

Tree Designation-
Non-Protected- 0 Caliper Inch required to replace
Secondary- 1/2" Caliper Inch per 1" Caliper removed required to replaced
Primary- 1" Caliper Inch per 1" Caliper removed required to replaced
Feature- 2" Caliper Inch per 1" Caliper removed required to replaced

Calculation-
Replacement Inches needed **83** , Replace with 4" Caliper Trees
83"/4"= 22 Trees Required

21 CANOPY TREES REQUIRED
21 CANOPY TREES PROVIDED

APPROVED:
I hereby certify that the above and foregoing site plan for a development in the City of Rockwall, Texas, was approved by the Planning & Zoning Commission of the City of Rockwall on the ___ day of _____, ____.

WITNESS OUR HANDS, this ___ day of _____, ____.

_____
Planning & Zoning Commission, Chairman

_____
Director of Planning and Zoning

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE
0	03/31/2025	BS	BS	BS	ISSUED FOR REVIEW

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TBPE No. F-1515

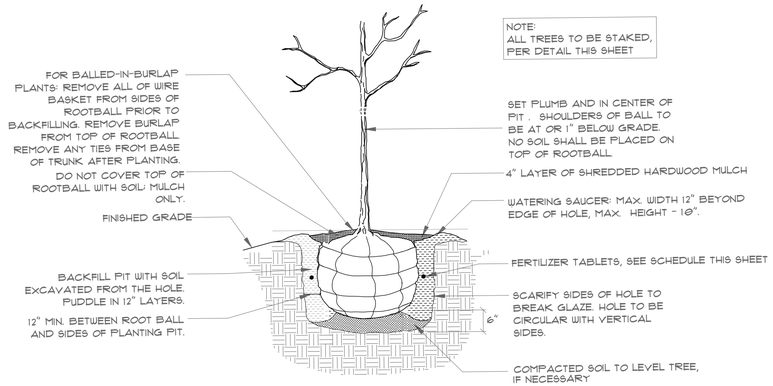
DUNKIN SIMS STOFFELS INC.

REGISTERED LANDSCAPE ARCHITECT ROBERT P. STOFFELS 1025 STATE OF TEXAS 4/1/25

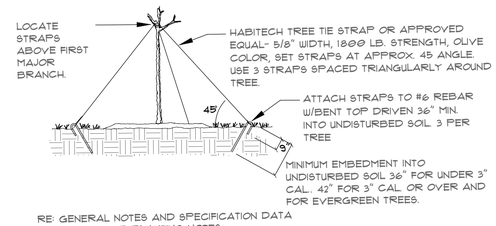
JOB NO.	3036-21
DESIGN BY	BS
CREATED	
CODE	
PLOTTED	3/31/2025
CHECKED BY	BS
LAST UPDATE BY	
DRAWN:	MW
SCALE:	AS NOTED
CHECKED:	
APPROVED:	
FILENAME:	
DRAWING NO.:	LP-2
ISSUE:	0

REC CAMPUS - INDOOR SHOOTING LANDSCAPE PLANS

LANDSCAPE PLAN

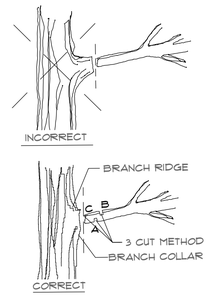


A SECTION: TREE PLANTING - B&B, BOX, CONT.
NTS



RE: GENERAL NOTES AND SPECIFICATION DATA FOR PLANTING NOTES.

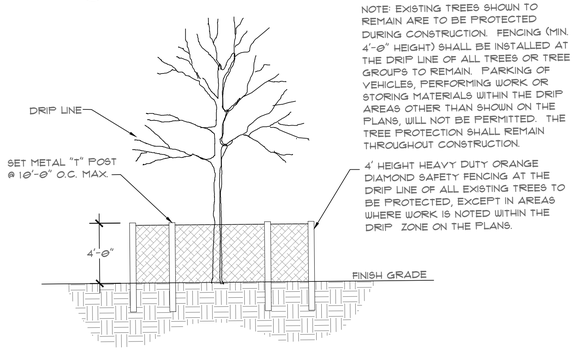
B SECTION: TREE GUYING
NTS



PRUNING NOTES:

1. REMOVE ALL BROKEN, DISEASED, OR WEAK BRANCHES.
2. MAKE ALL CUTS AS CLOSE TO THE BRANCH AS POSSIBLE-LEAVE THE BRANCH COLLAR
3. DO NOT CUT A LEADER.
4. PRUNE SO AS TO RETAIN THE NATURAL FORM OF THE TREE.
5. REMOVE APPROXIMATELY 1/3 OF INTERIOR BRANCHING.
6. DO NOT TIP PRUNE.
7. CONTACT LANDSCAPE ARCHITECT PRIOR TO PRUNING FOR FURTHER INSTRUCTIONS.
8. CUTS OVER 1/2" DIAMETER MADE TO TREES OF THE OAK FAMILY (IE RED OAK, LIVE OAK, BUR OAK, ETC.) FROM FEBRUARY 15 - DECEMBER 15 SHALL BE PAINTED WITH TREE PRUNING PAINT IMMEDIATELY FOLLOWING PRUNING (ONE HOUR MAX.). APPLY SUFFICIENT COATS TO ENSURE SEALING OF THE CUT.
9. REMOVE LARGE LIMBS BY PERFORMING THE 3-CUT METHOD.

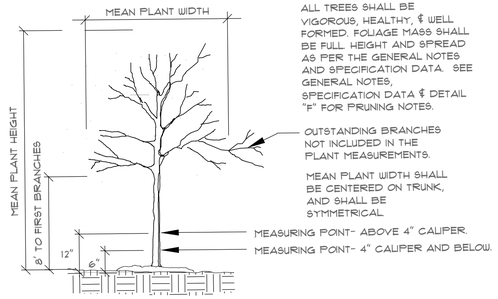
C SECTION: TREE PRUNING
NTS



NOTE: EXISTING TREES SHOWN TO REMAIN ARE TO BE PROTECTED DURING CONSTRUCTION. FENCING (MIN. 4'-0" HEIGHT) SHALL BE INSTALLED AT THE DRIP LINE OF ALL TREES OR TREE GROUPS TO REMAIN. PARKING OF VEHICLES, PERFORMING WORK OR STORING MATERIALS WITHIN THE DRIP AREAS OTHER THAN SHOWN ON THE PLANS, WILL NOT BE PERMITTED. THE TREE PROTECTION SHALL REMAIN THROUGHOUT CONSTRUCTION.

4' HEIGHT HEAVY DUTY ORANGE DIAMOND SAFETY FENCING AT THE DRIP LINE OF ALL EXISTING TREES TO BE PROTECTED, EXCEPT IN AREAS WHERE WORK IS NOTED WITHIN THE DRIP ZONE ON THE PLANS.

C SECTION: TREE PROTECTION
NTS



ALL TREES SHALL BE VIGOROUS, HEALTHY, & WELL FORMED. FOLIAGE MASS SHALL BE FULL HEIGHT AND SPREAD AS PER THE GENERAL NOTES AND SPECIFICATION DATA. SEE GENERAL NOTES, SPECIFICATION DATA & DETAIL "F" FOR PRUNING NOTES.

OUTSTANDING BRANCHES NOT INCLUDED IN THE PLANT MEASUREMENTS.

MEAN PLANT WIDTH SHALL BE CENTERED ON TRUNK, AND SHALL BE SYMMETRICAL

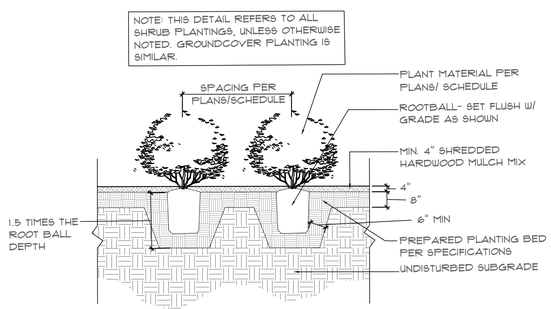
MEASURING POINT- ABOVE 4" CALIPER.
MEASURING POINT- 4" CALIPER AND BELOW.

D SECTION: TREE MEASURING
NTS

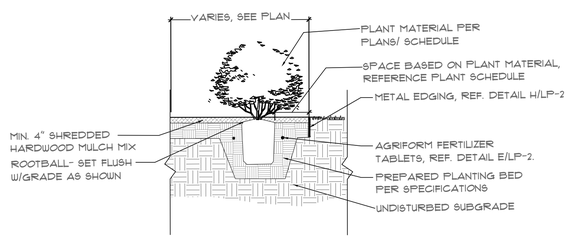
FERTILIZER SCHEDULE: PLANTING

TREES	SHRUBS AND PERENNIALS:
5-GALLON TREES 2 AGRIFORM* 21 GRAM TABLETS 15-GALLON TREES 3 AGRIFORM* 21 GRAM TABLETS 30-GALLON AND ALL B&B MATERIAL 1 AGRIFORM* 21 GRAM TABLET PER CALIPER EACH ONE-HALF (1/2) INCH OF CALIPER	1-GALLON AND SMALLER 1 AGRIFORM* 21 GRAM TABLET 3 TO 5-GALLON AND B&B MATERIAL WITH SPREADS TO THREE (3) FT. 2 AGRIFORM* 21 GRAM TABLETS 15-GALLON AND B&B MATERIAL WITH SPREADS GREATER THAN THREE (3) FT. 3 AGRIFORM* 21 GRAM TABLETS
SPACE TABLETS EVENLY AROUND ROOT BALL APPROX. 8" BELOW GRADE. PLACE NEXT TO BALL	PLACE TABLETS AT A DEPTH APPROX. 1/3 BALL DEPTH AND NEXT TO BALL
* OR APPROVED EQUAL	* OR APPROVED EQUAL

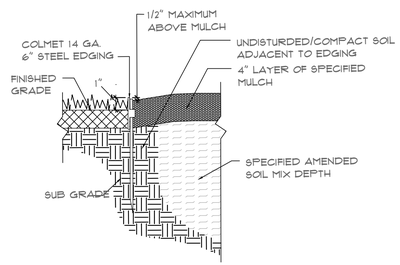
E CHART: FERTILIZER SCHEDULE



F DETAIL: LANDSCAPE BED W/ MULCH
NOT TO SCALE



G SECTION: LANDSCAPE BED W/ MULCH AND METAL EDGING
NOT TO SCALE



H SECTION: METAL EDGING
NOT TO SCALE

APPROVED:
I hereby certify that the above and foregoing site plan for a development in the City of Rockwall, Texas, was approved by the Planning & Zoning Commission of the City of Rockwall on the ___ day of _____, ____.

WITNESS OUR HANDS, this ___ day of _____, ____.

_____
Planning & Zoning Commission, Chairman

_____
Director of Planning and Zoning

REV	DATE	REV.BY	P.M.	ENG.	REVISION/RELEASE
0	03/31/2025	BS	BS	BS	ISSUED FOR REVIEW

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LAST UPDATE BY			
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CHECKED:		DRAWING NO.:	LP-3
APPROVED:		ISSUE:	0
FILENAME:			

REC CAMPUS- INDOOR SHOOTING LANDSCAPE PLANS

LANDSCAPE DETAILS