FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	F 2024(906), etc.		1
STATE	STATE DIST.NO.	COUNTY	
TEXAS	LBB	LUBBOCK, etc.	
CONT.	SECT.	JOB	HIGHWAY NO.
0053	01	136	US 84, etc.
FILENAME	US0084_GEN_TITLE.dgn		

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT NO. F 2024(906), etc.

Design Speed: Varies
2023 ADT: Varies
Functional Class: Principal Arterial

SECTION	CSJ	HIGHWAY	COUNTY	LIMITS	ROADWAY LENGTH	ROADWAY LENGTH
					FT	MI
1	0053-01-136	US 84	LUBBOCK	0.37 MI NORTH OF LYNN CL TO LYNN CL	2,034.00	0.385
2	0053-03-022	US 84	LYNN	LUBBOCK CL TO GARZA CL	19,366.00	3.668
3	0053-04-045	US 84	GARZA	LYNN CL TO POST (N. AVE. O)	80,285.00	15.205
4	0053-05-053	US 84	GARZA	SL 46 TO 1.03 MI EAST OF FM 2458	75,836.00	14.363
5	0053-06-032	US 84	GARZA	CR 386 TO SCURRY CL	40,776.00	7.723
6	0068-02-049	US 87	LYNN	NORTH SL 472 TO SOUTH SL 472	9,500.00	1.799
7	0068-03-034	US 87	LYNN	SOUTH SL 472 TO SOUTH SL 76	73,900.00	13.996
				TOTAL LENGTH	301,697.00	57.140

US 84 & US 87
LUBBOCK, GARZA & LYNN COUNTIES

FOR THE CONSTRUCTION OF SAFETY IMPROVEMENTS
CONSISTING OF MEDIAN CABLE BARRIER PLACEMENT AND
REMOVAL OF VARIOUS CROSS-OVERS

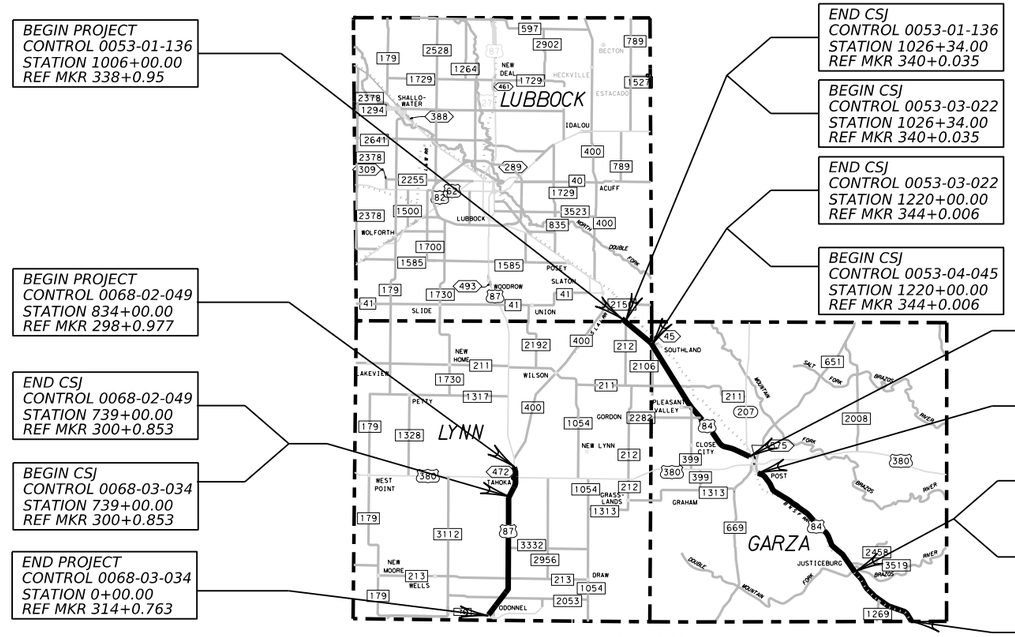
BEGIN PROJECT
CONTROL 0053-01-136
STATION 1006+00.00
REF MKR 338+0.95

BEGIN PROJECT
CONTROL 0068-02-049
STATION 834+00.00
REF MKR 298+0.977

END CSJ
CONTROL 0068-02-049
STATION 739+00.00
REF MKR 300+0.853

BEGIN CSJ
CONTROL 0068-03-034
STATION 739+00.00
REF MKR 300+0.853

END PROJECT
CONTROL 0068-03-034
STATION 0+00.00
REF MKR 314+0.763



LAYOUT NO SCALE

END CSJ
CONTROL 0053-01-136
STATION 1026+34.00
REF MKR 340+0.035

BEGIN CSJ
CONTROL 0053-03-022
STATION 1026+34.00
REF MKR 340+0.035

END CSJ
CONTROL 0053-03-022
STATION 1220+00.00
REF MKR 344+0.006

BEGIN CSJ
CONTROL 0053-04-045
STATION 1220+00.00
REF MKR 344+0.006

END CSJ
CONTROL 0053-04-045
STATION 2022+85.00
REF MKR 358+1.191

BEGIN CSJ
CONTROL 0053-05-053
STATION 61+00.00
REF MKR 360+1.321

END CSJ
CONTROL 0053-05-053
STATION 819+36.00
REF MKR 374+1.786

BEGIN CSJ
CONTROL 0053-06-032
STATION 819+36.00
REF MKR 374+1.786

END PROJECT
CONTROL 0053-06-032
STATION 1227+12.00
REF MKR 382+1.476

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, OCTOBER, 2023)

NO TDLR REVIEW REQUIRED
NO EQUATIONS
NO EXCEPTIONS
8 RAILROAD CROSSINGS: BNSF- 015027D, 015028K, 015030L, 015031T, 015032A, 015033G, 015034N, 015037J

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

SUBMITTED FOR LETTING: 1/23/2024
DocuSigned by: Shelley C. Harris P.E.
F9984108931347C...
DISTRICT DESIGN ENGINEER

RECOMMENDED FOR LETTING: 1/24/2024
DocuSigned by:
559AA9F194ED40A...
AREA ENGINEER

APPROVAL FOR LETTING: 1/24/2024
DocuSigned by: Greg P. Warren P.E.
642C665E4DDD46A...
DISTRICT ENGINEER

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

INDEX OF SHEETS

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		2

DATE: 2/2/2024 4:23:35 PM
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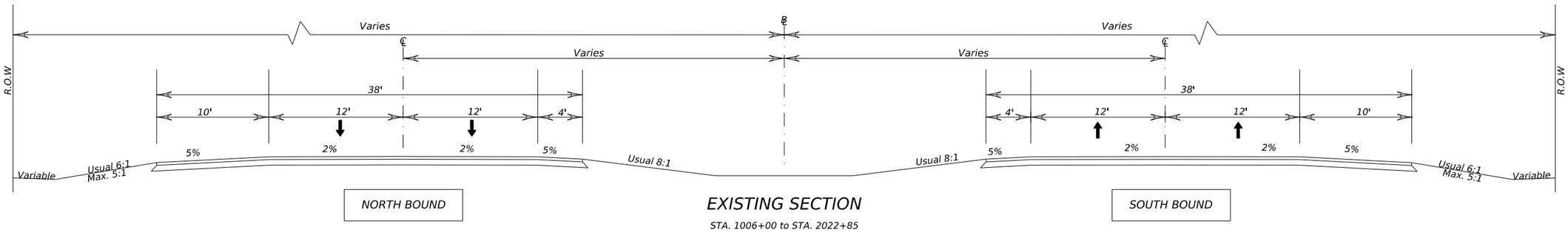

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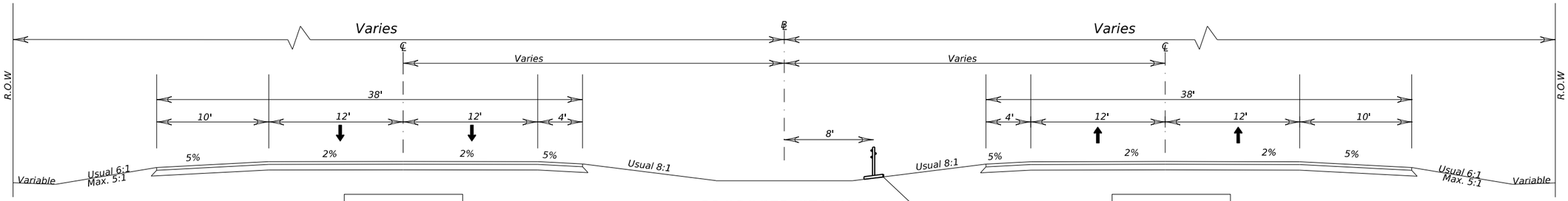

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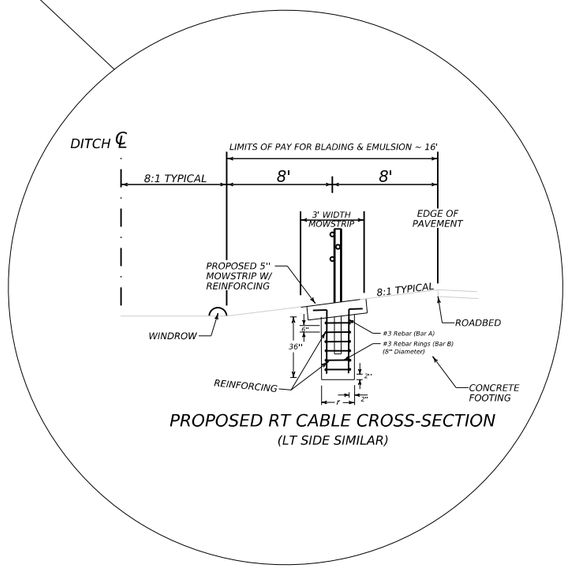

PROPOSED RT CABLE CROSS-SECTION
(LT SIDE SIMILAR)

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.
(US 84)
TYPICAL SECTIONS

SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		3

DATE: 2/2/2024 2:02:03 PM
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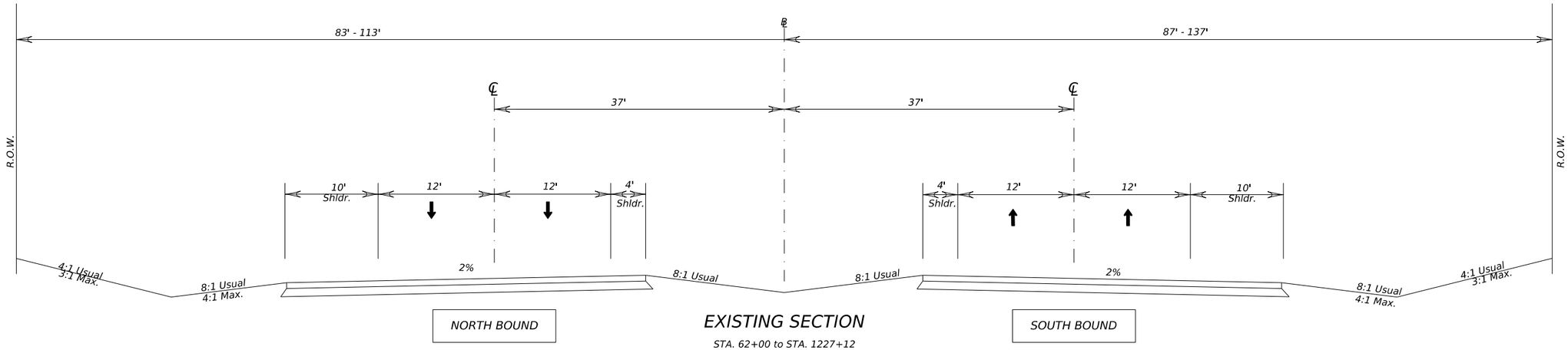

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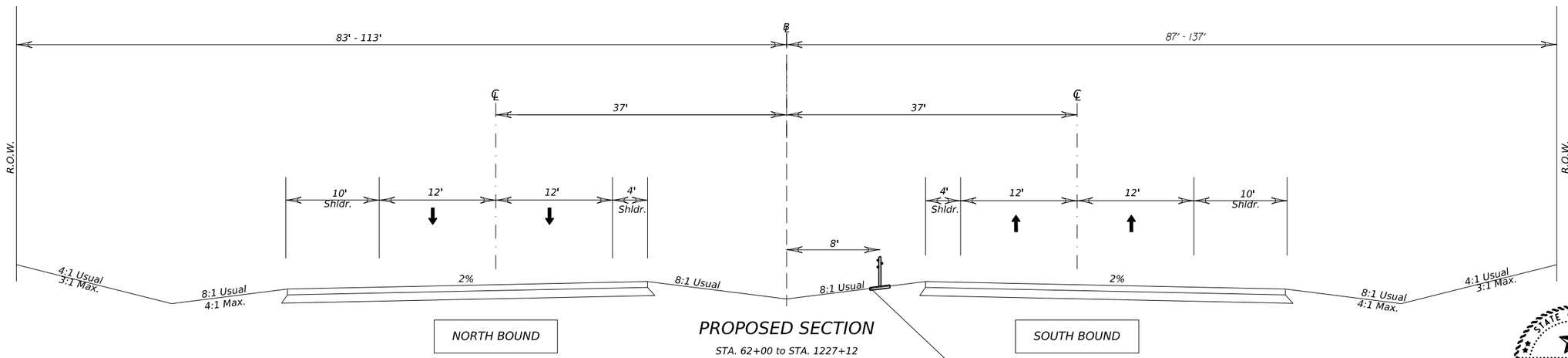

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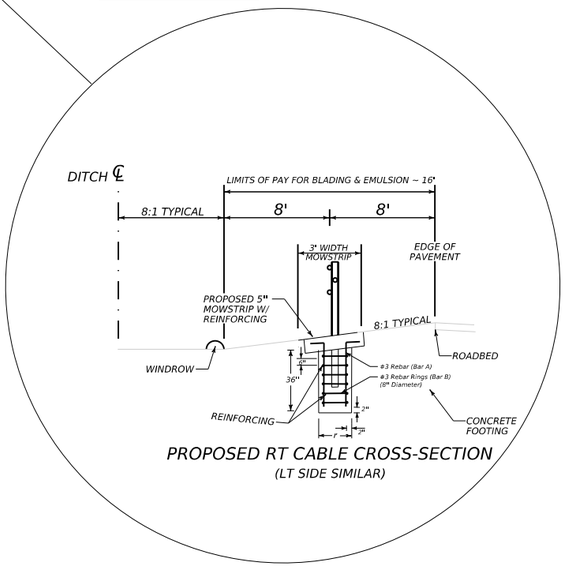

PROPOSED RT CABLE CROSS-SECTION

(LT SIDE SIMILAR)

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.
(US 84)
TYPICAL SECTIONS

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.

DIST	COUNTY	SHEET NO.
LBB	LUBBOCK, ETC.	4

DATE: 2/2/2024 3:02:02 PM
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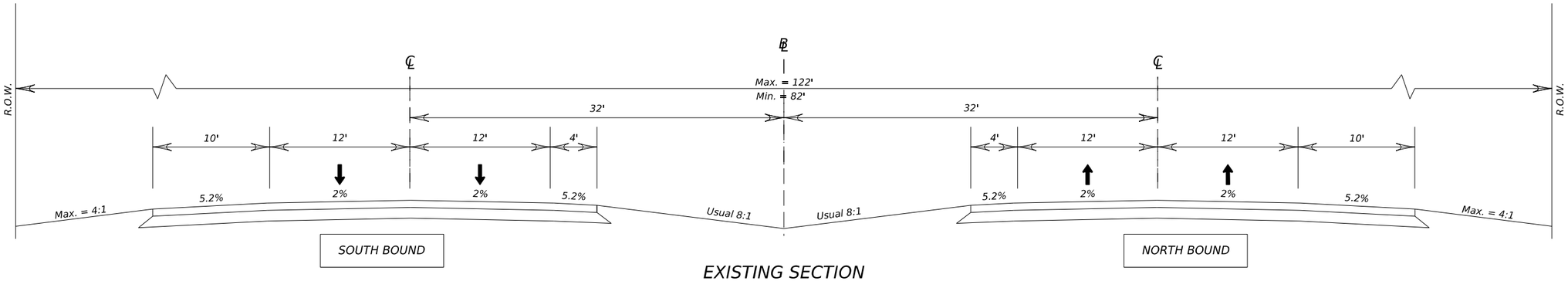

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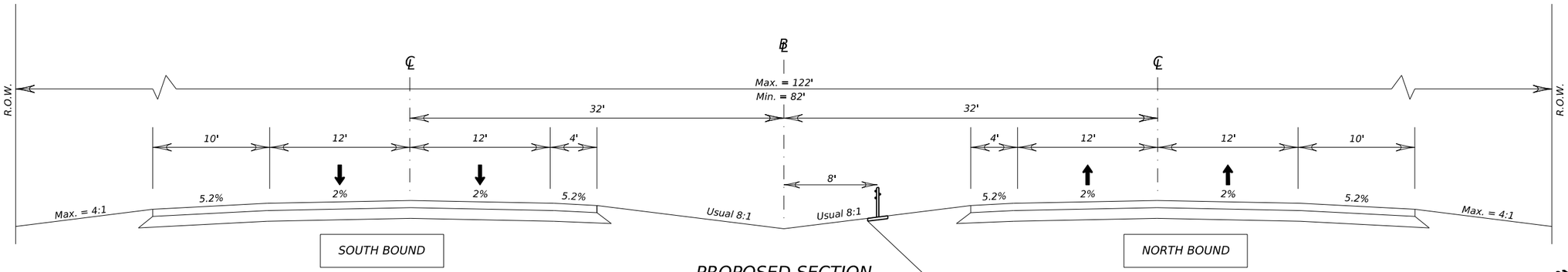

PROPOSED SECTION

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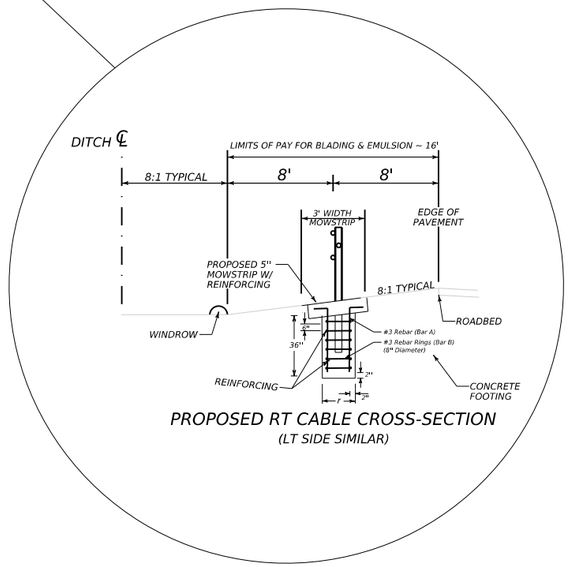

PROPOSED RT CABLE CROSS-SECTION

(LT SIDE SIMILAR)

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.
(US 87)

TYPICAL SECTIONS

SHEET 3 OF 4

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		5

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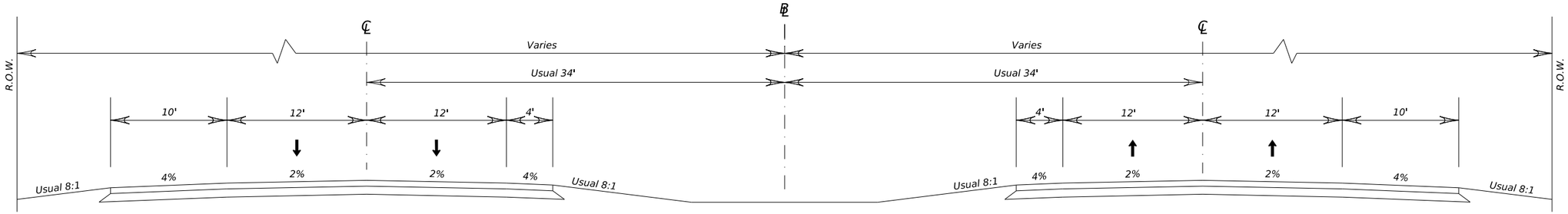


SOUTH BOUND

EXISTING SECTION

STA. 739+00 to STA. 834+00

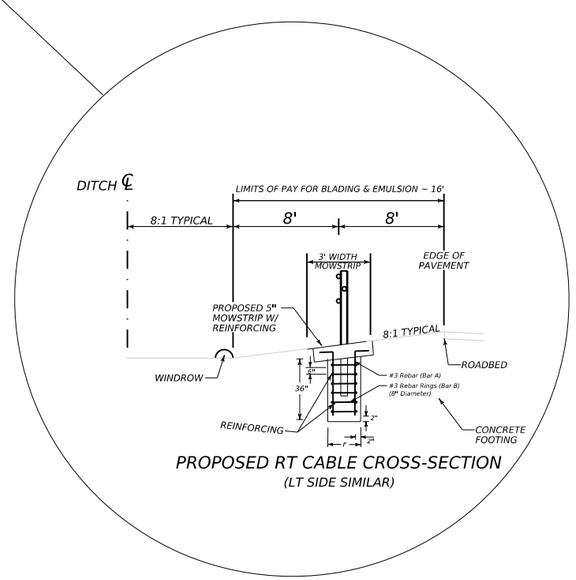
NORTH BOUND

SOUTH BOUND

PROPOSED SECTION

STA. 739+00 to STA. 834+00

NORTH BOUND



PROPOSED RT CABLE CROSS-SECTION

(LT SIDE SIMILAR)

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.
(US 87)

TYPICAL SECTIONS

SHEET 4 OF 4

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		6

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CK: DW: CK: DW:

GENERAL NOTES:

Surface Treatment Basis of Estimate

DESCRIPTION	EMUL (ERSN CONT)
ASPH TYPE & GRADE	CSS-1H
ASPH RATE (GAL/SY)	0.22

Surface Treatment Area (SY)

CSJ	EMUL (ERSN CONT)
0053-01-136	3014
0053-03-022	33350
0053-04-045	134595
0053-05-053	121359
0053-06-032	66864
0068-02-049	15255
0068-03-034	124132

General Requirements and Covenants - Items 1 thru 9

Contractor questions on this project are to be addressed to the following individual(s):

Seve Sisneros, Brownfield Area Engineer – seve.sisneros@txdot.gov ((806) 637-4501

Contractor questions will be accepted through email, phone, and in person by the above individuals. Questions may also be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:

https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the

County: Lubbock, etc. **Control:** 0053-01-0136, etc.

Highway: US 84, etc. **Sheet 7**

controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

The railroad coordination for this design has been completed *and/or* started at time of letting.

Item 1 – Abbreviations and Definitions

Contract Prosecution – Each contract awarded by the Department stands on its own and as such, is separate from other contracts. A contractor awarded multiple contracts, must be capable and sufficiently staffed to concurrently process any and all contracts at the same time.

Item 2 – Instructions to Bidders

The construction time determination schedule will be posted on the Letting Pre-Bid Q&A web page.

View the plans on-line or download from the web at:
http://www.dot.state.tx.us/business/plansonline/agreement.htm
Choose "I Agree" then, "Click here", then "State-Let-Construction", pick the letting month, then "Plans" and then choose the plans set.

Order plans from any of the plan reproduction companies shown on the web at:
http://www.dot.state.tx.us/business/contractors_consultants/repro_companies.htm

By signing this proposal, a bidder acknowledges that he/she has a copy of the "Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges", adopted by the Texas Department of Transportation, November 1, 2014. This specification book may be purchased from the Department or downloaded at:
http://www.txdot.gov/business/resources/txdot-specifications.html

There is no survey data or cross-sections for this project.

Utilities

Overhead and underground utility installations exist within the project limits.

Call One Call to mark the locations of all utilities. Call the Cities of Tahoka, Odonnell, and TxDOT separately to have their respective utilities marked.

Item 5 – Control of the Work

Perform construction surveying in accordance with Article 5.9.3, "Method C."

Replace all damaged ROW and USGS monuments at the contractor's expense.

When deviation from the plans is requested by the Contractor, but not required for installation, the Contractor will bear any additional costs associated with the deviation.

Restore all disturbed areas due to trenching or any construction activity to a condition equivalent to the original condition within 14 working days from the time work began in the area including all necessary stabilization.

The construction, operation, and maintenance of the proposed project will be consistent with the state implementation plan as prepared by the Texas Commission on Environmental Quality.

At the end of each day remove from the ROW, inside or outside the project limits, any excess material and debris resulting from construction.

Correct any deficiencies identified during the final inspection including required paperwork.

Submit all required paperwork within 60 days of project acceptance.

Item 6 – Control of Materials

Use materials from pre-qualified producers. A list of material producers pre-qualified by the Construction Division (CST) of the Texas Department of Transportation (TxDOT) can be found at the following website:
http://www.txdot.gov/business/resources/producer-list.html

In addition to the requirements of the plans and specifications, make all material and equipment furnished, installed, modified, tested, or otherwise used on this contract, and becoming the property of TxDOT, fully functional within the manufacturer normal specifications, warranties, and guarantees. Make any additional functions of the material and equipment normally supplied by the manufacturer, but not specified by TxDOT, completely functional.

To comply with the latest provisions of Build America, Buy America Act (BABA Act) of the Bipartisan Infrastructure Law, the contractor must submit an original of the TxDOT Construction Material Buy America Certification Form for all items classified as construction materials. This form is not required for materials classified as a manufactured product.

Refer to the Buy America Material Classification Sheet for clarification on material categorization.

The Buy America Material Classification Sheet is located at the below link.
https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html for clarification on material categorization.

Provide the State 30 days to test all materials and resolve any disputes.

County: Lubbock, etc. **Control:** 0053-01-0136, etc.

Highway: US 84, etc. **Sheet 7A**

Store material off TxDOT property or Right of Way unless approved by the project supervisor.

Repair damage to the Right of Way to the satisfaction of the project supervisor.

Item 7 – Legal Relations and Responsibilities

Coordinate street closures with the local fire, police, and other emergency personnel.

Maintain access to adjacent property at all times.

Notify, in writing, each residence and business 10 days prior to beginning construction of the phase/phases that are expected to affect their ingress and egress. This notice may be hand delivered or mailed.

When applicable, comply with all requirements of the Environmental Permits Issues and Commitments (EPIC) sheets.

Provide a lidded dumpster to be used by Contractor's personnel on the job site. The lid or covering to the dumpsters needs to be able to stay closed in high winds for preventing trash from being blown out. This shall be considered subsidiary to the various bid items.

Dispose of all waste materials in compliance with local, state, and federal regulations. Submit a list of all approved waste sites to the Engineer for review.

All vehicles in the work zone shall use flashing amber strobe lights visible 360 degrees.

No significant traffic generator events identified.

This project will not require a railroad agreement, flagging, insurance, or right-of-entry.

Item 8 - Prosecution and Progress

This project is to be complete in 350 days and 22 months of barricades in accordance with the contract documents.

Monthly schedule updates are a very important aspect of managing the progress of this project. The Engineer may withhold the monthly estimate if the schedule update has not been received.

A bar chart will be required on this project.

Do not begin work before sunrise or end work after sunset unless authorized by the Engineer, and remove all equipment from the roadway before sundown.

Perform any erosion control measures such as seeding or sodding before beginning the next phase, or land, unless otherwise authorized by the Engineer.

Work around existing culverts, signs, mailboxes, object markers and delineators. Any damages resulting from the Contractor's operation shall be repaired by the Contractor to the satisfaction of the Engineer.

Working days will be computed and charged in accordance with Article 8.3.1.4 Standard Workweek.

Shut down operations the working day before the following major traffic generating holidays: January 1st (New Year's); Last Monday in May (Memorial Day); July 4th (Independence Day); First Monday in September (Labor Day); Fourth Thursday in November (Thanksgiving); and December 24th (Christmas Eve).

The work zone shall not exceed 2 miles unless otherwise directed by the Engineer.

Payment for final 3% mobilization will be made once all project signage has been removed and all other items according to Article 500.3. Timeliness for submittal of required paperwork and correction of deficiencies is a consideration in developing the final contractor evaluation score.

The *90*-day convenience delay is for *material production and aggregate stockpiling.*

Water may be hard to come by. Check for water restrictions.

Be advised that concrete plants are few and far between in this part of the state.

Item 9 - Measurement and Payment

Submit material-on-hand payment requests by the monthly estimate cutoff date.

Material-on-hand will be paid item for item regardless of how the work was bid.

Item 106 – Obliterating Abandoned Roadway

Retain possession of removed materials.

Item 134 - Backfilling Pavement Edges and Item 150 - Blading

Salvage existing topsoil and grass in windrows along the edge of the grading operations, or as directed by the Engineer. As a land is finished, spread the adjacent topsoil and grass uniformly over the disturbed area. Perform this work in phases not to exceed three miles, unless otherwise authorized by the Engineer.

Some reshaping of the ditch back slope may be required.

Water will be required as directed by the Engineer to compact backfill the pavement edges.

County: Lubbock, etc. **Control:** 0053-01-0136, etc.

Highway: US 84, etc. **Sheet 7B**

Backfill and compact the mowstrip within 2 weeks of placement.

Item 314 - Emulsified Asphalt Treatment

Apply the emulsified asphalt and water mixture, as directed by the Engineer.

Item 420 - Concrete Substructures

Furnish and place preformed fiber material, a minimum one-half (1/2)-inch thick, as shown on the plans or directed by the Engineer.

Furnish a temperature recorder with the minimum capabilities of a 7-day recording time, 2 degree F division, and 120 VAC with 9-volt backup, for each curing tank used on the project. Supply all charts, recording pins, and other equipment necessary for complete operation of the temperature recorder during the project. The temperature recorder and all associated equipment will not be paid directly, but will be subsidiary to the various bid items.

Use Grade 3 or Grade 4 coarse aggregate in all concrete structures.

Cold weather protection requirements within 72 hours of a concrete pour as per the following table:

PROJECTED LOW TEMP	PROTECTION REQUIRED
< 20 degrees	DO NOT POUR
20-27 degrees	cover with plastic, then a insulating blanket, and plastic on top
28-35 degrees	cover with plastic, then a insulating blanket
> 35 degrees	no protection required

All projected temperatures will be based on the NOAA website. None of the above actions releases the Contractor from the responsibility for freeze damaged concrete for whatever reason.

Coring of structural classes of concrete will not be allowed. All coring of miscellaneous concrete shall be at the Contractor's expense including all prep work. Coring must be completed within 3 days of notice of failing 28-day samples; otherwise pay deductions apply using 28-day compressive strength.

Provide TY II curing compound for all curb and gutter, sidewalks, driveways, curb ramps, riprap, and cast-in-place SET's.

When doweling into concrete, clean out the hole, fill completely with epoxy, then place the dowel. Do not dip the dowel into epoxy first and shove it into the hole.

Do not place concrete when the wind gusts get to over 25 miles per hour.

Vibrate all concrete.

Provide the State with 48 hours notice before pouring any concrete.

Item 421 - Hydraulic Cement Concrete

If fly ash is used, a maximum of 35% will be allowed.

Provide air entrainment in all concrete except for concrete used in drilled shafts and precast concrete members. Target an entrained air content of 4.0% +/- 1% for concrete pavement and 5.5% +/- 1% for all other concrete requiring air entrainment. Ensure the minimum entrained air content is at least 3.0% for all classes of concrete.

Air entrainment chemicals will not be allowed on-site.

The Engineer will perform all concrete job control testing.

Supply 2 – 4’ x 8’ sheets from a material that is flat, rigid, and non-absorbant, in order to perform required testing procedures at the location of concrete placements.

Use 4-inch by 8-inch cylinder molds for concrete with Grade 3 or smaller coarse aggregate. Supply new cylinder molds and lids subsidiary to the various bid items.

The Engineer will inspect concrete batch plants and trucks for approval.

For this project, the requirements of Article 421.4.8.1, “Certification of Testing Personnel” are waived, except that “Personnel performing these tests are subject to Departmental approval.”

Concrete plant must be capable of providing automated moisture content control for both coarse and fine aggregate.

Item 432 - Riprap

Provide 5-inch thick Class A concrete riprap, unless otherwise indicated in the plans.

Riprap shall be 3’ width, as shown on the Typical Section sheets.

Use #3 reinforcing bars. Welded wire, wire mesh, or fiber-reinforced concrete will not be allowed.

Reinforcing steel shall be placed at 16”x16” on centers. The center piece of reinforcing steel that falls over an anchoring hole/shaft may be cut to allow placement of cable fence posts.

Provide one-half (1/2)-inch thick expansion joint material at approximately 100-foot intervals, or as determined by the Engineer.

County: Lubbock, etc. **Control:** 0053-01-0136, etc.

Highway: US 84, etc. **Sheet 7C**

3 pieces of longitudinal steel shall be placed in all cable barrier mowstrip.

Transverse bars shall be 32” in length and placed every 16” longitudinally.

Except where expansion joints are located, place tool joints every 20 ft for the length of the mowstrip.

Excavate trench for mowstrip after blading.

Backfill mowstrip after forms are removed. This will be considered subsidiary.

Follow cold weather protection requirements listed under Item 420.

Seal between concrete boundaries.

Item 502 - Barricades, Signs And Traffic Handling

Prior to beginning construction, the Engineer shall approve the routing of traffic and sequence of work.

Additional signs and barricades as directed by the Engineer shall be considered subsidiary to Item 502.

Provide flashing portable arrow panels for all lane closures.

Wash the channelizing devices and barricades following each rainfall or snowfall event and at times deemed necessary by the Engineer.

To ensure the safety and convenience of traffic, flaggers may be required when construction machinery is being operated along, across, or adjacent to lanes carrying traffic. If considered necessary by the Engineer, supplemental signs and barricades may be required.

Fill any holes left by barricade or sign supports and restore the area to its original condition.

Barricades, Signs and Traffic Handling is a plan quantity item. If time is suspended, no additional compensation will be made.

Traffic switches will not be permitted on Fridays or any working day preceding a holiday unless authorized by the Engineer.

Cones or chevrons may be used in lieu of vertical panels at the discretion of the Engineer. Cones cannot be used to separate opposing traffic.

The Contractor shall bid the traffic control plan shown in the plans. Any proposed alterations to the TCP (combining work areas / phasing / etc.) shall be submitted to the Engineer at least 10 days prior to anticipated changes.

Square tubing sign supports may be used for temporary construction signs. Aluminum and wood signs may be mounted if the vertical supports are embedded into the ground. Square tubing supports on skids which are typically held in place with sand bags can only support signs made of light weight flutted plastic.

Any trench or drop off over 2" and less than 10" will require a safety slope of at least 1:1 if drop off is going to be existing for more than 2 nights. For drop-offs greater than 10", a safety slope will be required at the end of operations for that day. This safety slope may be constructed with RAP, embankment, or other material approved by the Engineer. The placement, maintenance, and removal of this safety slope is the responsibility of the Contractor and will be considered subsidiary to the various bid items.

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

Correct all noted deficiencies within 7 calendar days, otherwise, cease all operations until the noted deficiencies are corrected.

Stockpiles that meet the barricade requirements as shown on the BC(10) Standard are required to be erected at the time of material delivery in the Right-of-Way and maintained as long as the stockpile exists. Payment for Material-on-Hand will be withheld from the estimate for inadequate barricades or the failure to maintain barricades on a per stockpile basis as determined by the Engineer.

Like new traffic control devices will be required at the initial setup for all projects or as approved by the Engineer.

Provide flags and a CW8-15P "MOTORCYCLE WARNING" plaque on all CW20-1D "ROAD WORK AHEAD" signs except on side roads.

Use only the work zone speed limit and TCP signs that are relevant to the active work area and as directed. Reset signs for subsequent work phases as work progresses and approved by the Engineer. Reset normal speed limit signs at the ends of work areas.

Project limit signage is required on both sides of each roadbed on a divided highway.

County: Lubbock, etc. **Control:** 0053-01-0136, etc.

Highway: US 84, etc. **Sheet 7D**

Stop adjacent traffic using TCP(1-2) during the application of asphalts unless otherwise authorized by the Engineer.

All bid items and work requiring traffic control is the responsibility of the contractor, even when not explicitly detailed in the plans. Consider this work subsidiary to Item 502.

TMAs and Portable Changeable Message Boards will not be used as Arrow Boards.

No lane closures shall be left in place overnight.

The contractor is to respond on-site within 30 minutes to any traffic control maintenance after wind events, storms, etc., and as directed by the Engineer.

Ground mount all signs if possible.

This project is for daytime work only. If you elect to work at night, all expenses for night work will not be compensated for.

This project will be considered stationary work. If mobile operations are requested, the state will pay for one day of stationary TMA and the contractor will be responsible for all other costs.

Item 504 - Facilities for Field Office and Laboratory

Furnish one Type B structure. Field offices shall be located adjacent to the project site.

The Contractor will furnish a concrete cylinder breaker and cylinder bath, subsidiary to the furnished field laboratory. Provide calibration documentation for all supplied equipment.

Encompass the field office only with a fence enclosure providing a minimum 6.5-foot clearance around the perimeter of the field office.

Provide 2 tables and 1 long meeting table. Provide 1 chair for each table and enough chairs for the meeting table. Provide 2 filing cabinets. Equip the field office and lab with window blinds.

Provide internet connectivity, a printer/fax/scanner/copier, and telephone service to field offices, including installation, monthly charges and the phones.

Equip all field offices and field labs with a surge protector at the circuit breaker panel.

Item 506 - Temporary Erosion, Sedimentation, and Environmental Controls

Place a weatherproof bulletin board containing the TCEQ required information on the project at a site directed by the Engineer. Post the following documents: (1) "TCEQ TPDES Storm Water Program" Construction Site Notice and (2) TCEQ "TPDES Permit." Place rain gauge(s) at locations designated by the Engineer. At the completion of the contract, the bulletin board

will become the property of the State and will remain in place until 70 percent vegetation coverage has been obtained.

Provide long-term, Type 1 construction exits, located at the Contractor's equipment storage area.

Silt fence, sandbags and other BMPs will be placed and relocated as directed by the Engineer in order to comply fully with the SWP3 requirements.

The soil area disturbed by this project, including all disturbed areas within the limits of this project as described in the Contract and at Contractor project specific locations (PSLs) within one mile of the project limits, contributes to the establishment of the Texas Commission on Environmental Quality (TCEQ) Construction General Permit (CGP) requirements for storm water discharges. The Department will obtain an authorization from the TCEQ to discharge storm water for construction activities shown on the plans. The Contractor shall obtain the required authorization from the TCEQ for Contractor project specific locations (PSLs) for construction support activities off the right-of-way. As directed by the Engineer, the Contractor shall obtain any required authorization from the TCEQ for on-site PSLs. When the total area disturbed within the project limits and at PSLs within one mile of the project limits exceeds five acres, the Contractor shall provide a copy of the Contractor's Notice of Intent (NOI) submission and Construction General Permit for PSLs on the right-of-way to the Engineer (and submit a copy of NOIs to appropriate MS4 operators).

Sediments removed from BMPs shall be paid for by force account. The Contractor shall submit an invoice for the work.

Correct all noted deficiencies within 7 calendar days, otherwise, cease all operations until the noted deficiencies are corrected.

Maintain 100 feet of silt fence, 100 feet of erosion control logs, and 50 sandbags on site at all times for repairs/replacement as needed.

Set SWP3 measures by phase.

Item 543 – Cable Barrier System

Reimbursable repair or replacement will be paid at the contract bid prices,

All systems and requisite components shall meet TL-4 criteria.

Only pre-stressed cables shall be used.

Drilled shafts are considered subsidiary to this item.

Follow the manufacturer's installation and handling instructions and/or recommendations.

County: Lubbock, etc. **Control:** 0053-01-0136, etc.

Highway: US 84, etc. **Sheet 7E**

Cable post and anchor delineators will be considered subsidiary to Item 543 and shalkl be placed as near to 80' increments as practical.

Delineators attached to the cable barrier as shown in D&OM(6) shall be double sided and are subsidiary to Item 543.

Ensure that the cable barrier manufacturer provides training to TxDOT maintenance forces and local emergency personnel on how to extract, repair, and maintain the system after it has been hit.

Item 644 - Small Roadside Sign Assemblies

All signs on this project, new or relocated, will require a retroreflective wrap on the sign support. This wrap shall be 12 inches in height, visible in all directions and shall be placed 3 ft. below the bottom of the sign. The color for YIELD, STOP, WRONG WAY, and DO NOT ENTER signs shall be red. The color for all other signs shall be yellow. This retroreflective wrap will not be paid for directly but considered subsidiary to Item 644.

Stake all sign locations, and receive approval from the Engineer, prior to sign placement.

The triangular slip bases will be the two bolt clamp type (Southern Plains Fabrication or equivalent). For more information refer to the approved materials producers list:
http://www.txdot.gov/business/resources/producer-list.html

New sign studs and new sign posts will be necessary for relocating existing signs.

Perform the following work subsidiary to Items 644.
For all signs designated for removal:

- Salvage aluminum signs,
- Palletize and band salvaged aluminum signs,
- Stockpile signs from 0053-04-045 at the Lynn County Maintenance Yard in Tahoka, TX. The office number is 806-998-4004. Contact is Ryan Brown.

Item 658 - Delineator and Object Marker Assemblies

Delineator and object marker assembly posts shall be driveable and composed of post-consumer recycled materials. Embedded stub shall be perforated square tubing.

Driveable posts shall be the three-piece Flexible Delineator Post System, utilizing a 2-3/8" round post with a square to round flexible joint. The Embedded Anchor shall be 2" x 12 gauge x 24" long steel perforated square tubing. The Posts shall be permanently sealed at the top and have a 3-1/2" wide x 13" flattened surface to accommodate up to a 3" x 12" reflective sheet on both sides.

Item 730 - Roadside Mowing

Mow full-width from pavement edge to Right-of-Way line 2 times per CSJ. The Engineer shall dictate the times to mow and the areas in the project to mow.

Each mowing cycle is for each CSJ. The approximate mowing areas are 0053-01-136 = 6 acres, 0053-03-022 = 55 acres, 0053-04-045 = 229 acres, 0053-05-053 = 216 acres, 0053-06-032 = 116 acres, 0068-02-049 = 36 acres, and 0068-03-034 = 278 acres.

Notify the Engineer by 9:00 am each day for work completed the previous day, including hand trimming and cleanup. The Engineer will then inspect the section(s) of roadway for acceptance, not more than two (2) working days after notification.

Mobile TMAs will be required where median cable is present and the mower deck extends into the roadway.

Truck mounted attenuators shall be used while mowing.

Item 734 – Litter Removal

Perform litter removal prior to mowing and as directed by the Engineer. Each litter removal cycle is for each CSJ.

Item 6001 - Portable Changeable Message Sign

Provide messages as directed by the Engineer.

Provide 4 solar powered changeable message signs for the duration of this project.

Inform the public 2 weeks before construction begins.

Item 6185 – Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

Provide 4 TMAs for stationary use for the duration of the project. Stationary TMAs will be used during the various phases of work required for this project. Payment will be made by the day for each TMA used in stationary operations.

A TMA is considered stationary when the TMA is parked more than 15 minutes.

Provide 3 TMAs for mobile use. Mobile TMAs will be used for moving operations such as striping and RPM placement. Payment will be made by the day for each TMA used in mobile operations.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0053-01-136 **DISTRICT** Lubbock **COUNTY** Garza, Lubbock, Lynn
HIGHWAY US 84, US 87

			CONTROL SECTION JOB	**0053-01-136**		**0053-03-022**		**0053-04-045**		**0053-05-053**		**0053-06-032**		**0068-02-049**	
			PROJECT ID	**A00195964**		**A00195968**		**A00195970**		**A00178159**		**A00195974**		**A00178180**	
			COUNTY	**Lubbock**		**Lynn**		**Garza**		**Garza**		**Garza**		**Lynn**	
			HIGHWAY	**US 84**		**US 84**		**US 84**		**US 84**		**US 84**		**US 87**	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	104-6009	REMOVING CONC (RIPRAP)	SY							2,627.000					
	106-6001	OBLITERATING ABANDONED ROAD	STA					11.900				1.300			
	134-6002	BACKFILL (TY B)	STA	17.000		188.000		757.000		683.000		376.000		86.000	
	150-6001	BLADING	STA	2.000		18.000		72.000		65.000		36.000		8.000	
	314-6013	EMULS ASPH (EROSN CONT)(CSS-1H)	GAL	663.000		7,337.000		29,611.000		26,699.000		14,710.000		3,356.000	
	432-6046	RIPRAP (MOW STRIP)(5 IN)	CY	79.000		869.000		3,510.000		3,165.000		1,744.000		398.000	
	500-6001	MOBILIZATION	LS	0.008		0.066		0.267		0.253		0.133		0.031	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	1.000		2.000		6.000		5.000		3.000		1.000	
	506-6020	CONSTRUCTION EXITS (INSTALL) (TY 1)	SY	200.000		200.000		200.000		200.000		200.000		200.000	
	506-6024	CONSTRUCTION EXITS (REMOVE)	SY	200.000		200.000		200.000		200.000		200.000		200.000	
	506-6035	SANDBAGS FOR EROSION CONTROL	EA			300.000		969.000		1,140.000		420.000		420.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF							1,218.000		1,374.000			
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF							609.000		627.000			
	506-6042	BIODEG EROSN CONT LOGS (INSTL) (18")	LF	60.000		450.000		3,675.000		6,270.000		5,730.000		570.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	30.000		225.000		1,838.000		3,135.000		2,865.000		285.000	
	543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	1,667.000		18,513.000		74,280.000		67,000.000		36,840.000		8,470.000	
	543-6020	CABLE BARRIER TERMINAL SECTION (TL-4)	EA	1.000		9.000		52.000		46.000		28.000		4.000	
	543-6021	REMOVE CABLE BARRIER	LF							7,880.000					
	543-6022	REMOVE CABLE BARRIER TERMINAL SECTION	EA							4.000					
	644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA			7.000		53.000		15.000		7.000		2.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA					5.000				5.000			
	658-6060	REMOVE DELIN & OBJECT MARKER ASSMS	EA					3.000		4.000		1.000			
	658-6095	INSTL DEL ASSM (D-DY)SZ 1(YFLX)GND	EA	1.000		9.000		52.000		46.000		28.000		4.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")	LF					420.000				275.000			
	730-6107	FULL - WIDTH MOWING	CYC	2.000		2.000		2.000		2.000		2.000		2.000	
	734-6002	LITTER REMOVAL	CYC	2.000		2.000		2.000		2.000		2.000		2.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	9.000		90.000		373.000		352.000		189.000		343.000	
	6185-6002	TMA (STATIONARY)	DAY	9.000		90.000		373.000		352.000		189.000		343.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	1.000		3.000		12.000		11.000		5.000		2.000	
	08	CONTRACTOR FORCE ACCOUNT SAFETY CONTINGENCY (NON-PARTICIPATING)	LS	1.000											
		CONTRACTOR FORCE ACCOUNT EROSION CONTROL MAINTENANCE (NON-PARTICIPATING)	LS	1.000											

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0053-01-136

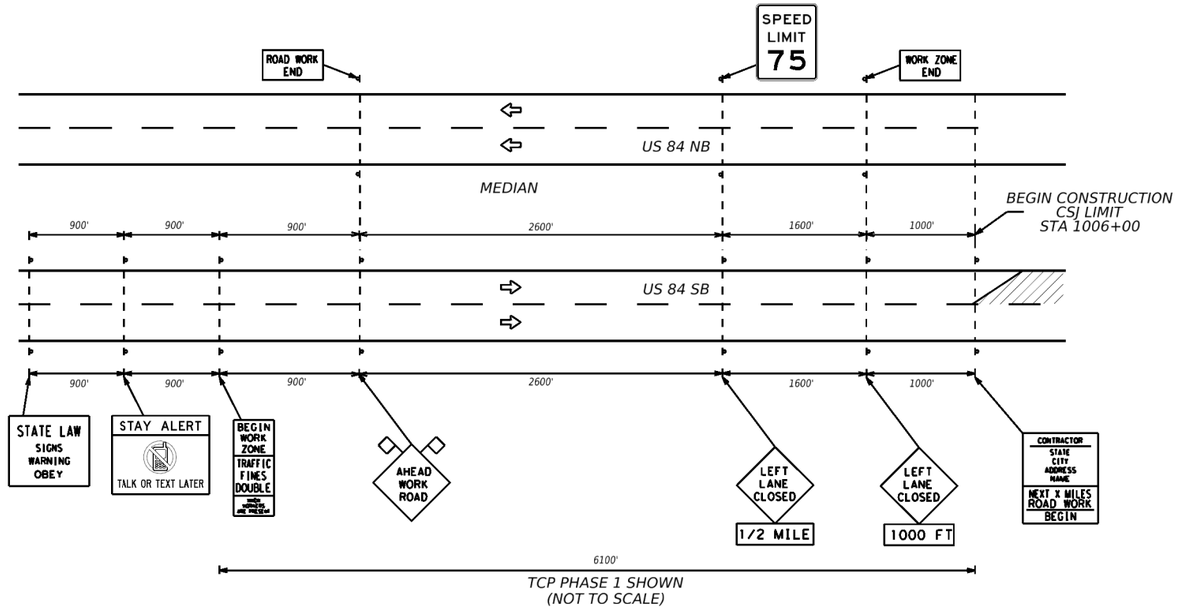
DISTRICT Lubbock
HIGHWAY US 84, US 87

COUNTY Garza, Lubbock, Lynn

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**0068-03-034**			
		PROJECT ID		**A00178181**			
		COUNTY		**Lynn**			
		HIGHWAY		**US 87**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	104-6009	REMOVING CONC (RIPRAP)	SY			2,627.000	
	106-6001	OBLITERATING ABANDONED ROAD	STA			13.200	
	134-6002	BACKFILL (TY B)	STA	698.000		2,805.000	
	150-6001	BLADING	STA	66.000		267.000	
	314-6013	EMULS ASPH (EROSN CONT)(CSS-1H)	GAL	27,309.000		109,685.000	
	432-6046	RIPRAP (MOW STRIP)(5 IN)	CY	3,237.000		13,002.000	
	500-6001	MOBILIZATION	LS	0.242		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	4.000		22.000	
	506-6020	CONSTRUCTION EXITS (INSTALL) (TY 1)	SY	200.000		1,400.000	
	506-6024	CONSTRUCTION EXITS (REMOVE)	SY	200.000		1,400.000	
	506-6035	SANDBAGS FOR EROSION CONTROL	EA	1,065.000		4,314.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF			2,592.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF			1,236.000	
	506-6042	BIODEG EROSN CONT LOGS (INSTL) (18")	LF	3,825.000		20,580.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	1,913.000		10,291.000	
	543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	68,560.000		275,330.000	
	543-6020	CABLE BARRIER TERMINAL SECTION (TL-4)	EA	46.000		186.000	
	543-6021	REMOVE CABLE BARRIER	LF			7,880.000	
	543-6022	REMOVE CABLE BARRIER TERMINAL SECTION	EA			4.000	
	644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	42.000		126.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA			10.000	
	658-6060	REMOVE DELIN & OBJECT MARKER ASSMS	EA			8.000	
	658-6095	INSTL DEL ASSM (D-DY)SZ 1(YFLX)GND	EA	46.000		186.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")	LF			695.000	
	730-6107	FULL - WIDTH MOWING	CYC	2.000		14.000	
	734-6002	LITTER REMOVAL	CYC	2.000		14.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	44.000		1,400.000	
	6185-6002	TMA (STATIONARY)	DAY	44.000		1,400.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	10.000		44.000	
	08	CONTRACTOR FORCE ACCOUNT SAFETY CONTINGENCY (NON-PARTICIPATING)	LS			1.000	
		CONTRACTOR FORCE ACCOUNT EROSION CONTROL MAINTENANCE (NON-PARTICIPATING)	LS			1.000	

SEE TCP SHEETS FOR
OTHER TEMPORARY SIGNAGE

TO SLATON



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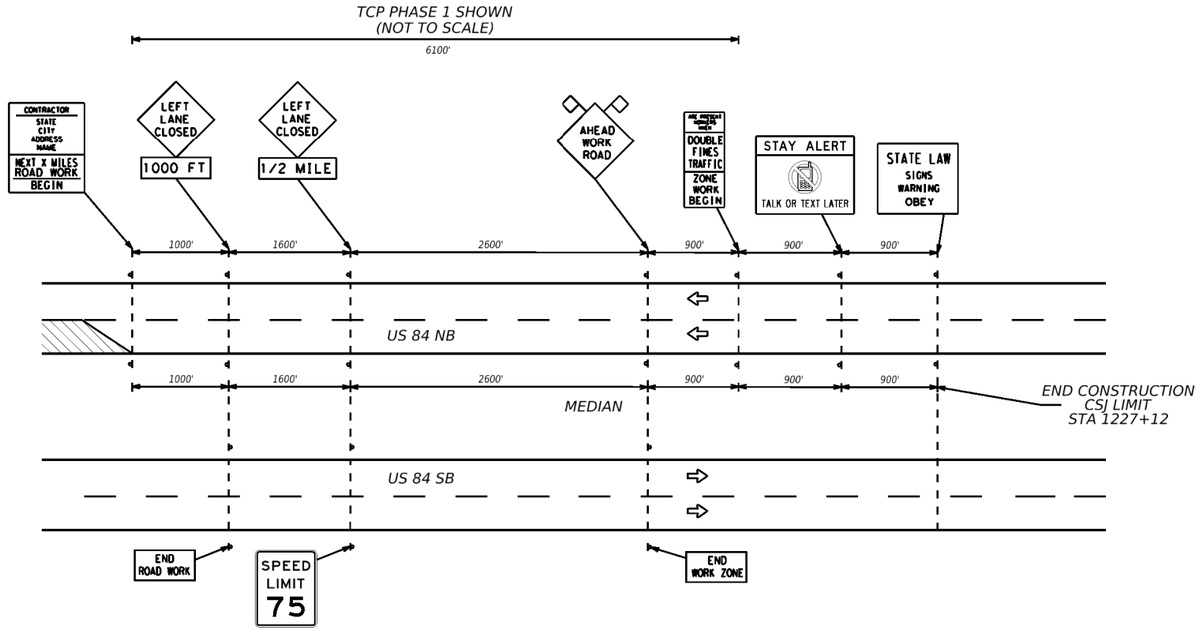

SEE TCP SHEETS FOR
OTHER TEMPORARY SIGNAGE

TO DERMOTT

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

PERIMETER SIGN LAYOUT
(US 84)

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		9

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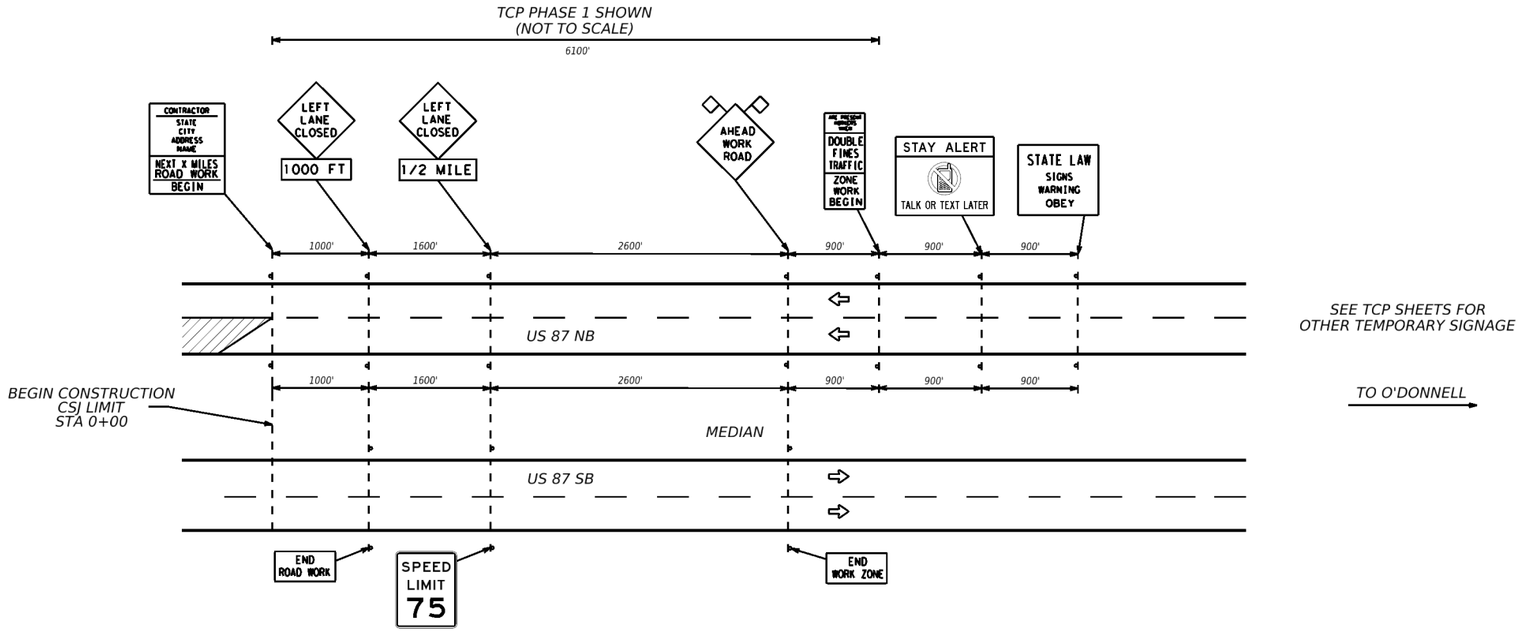

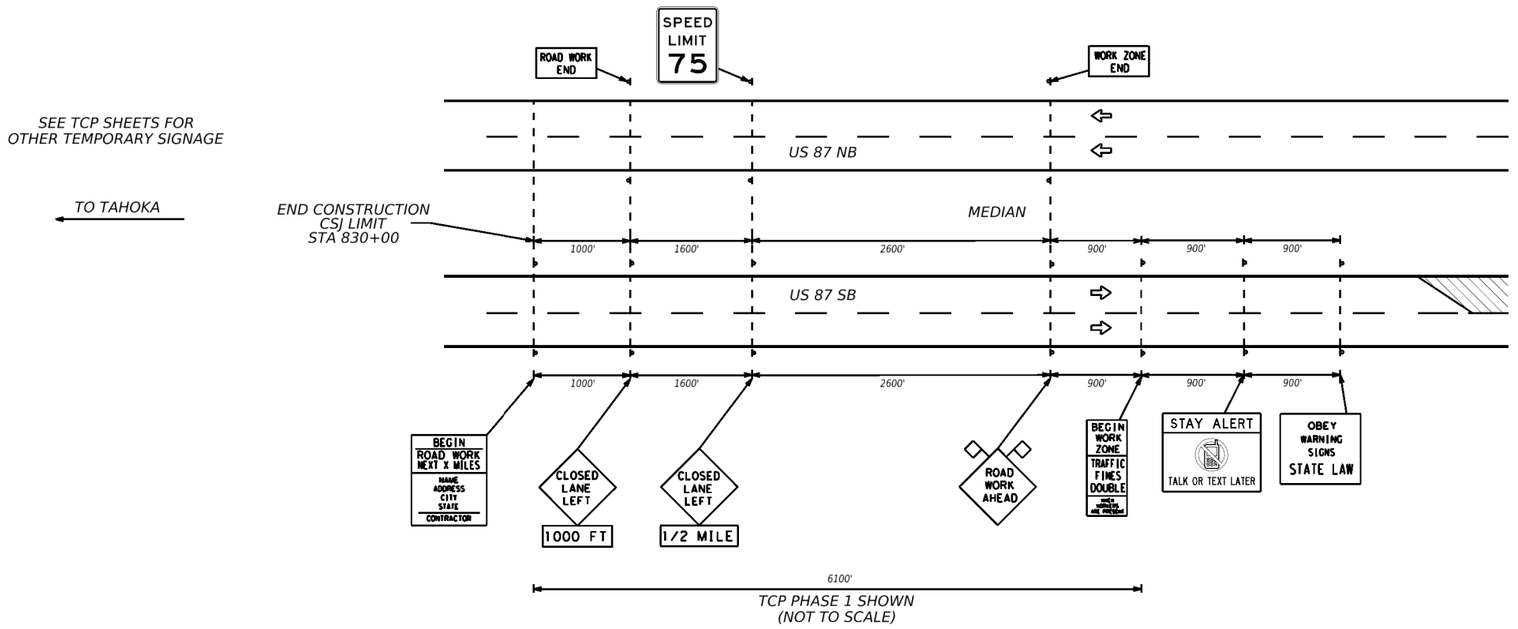

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

PERIMETER SIGN LAYOUT
(US 87)

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		10

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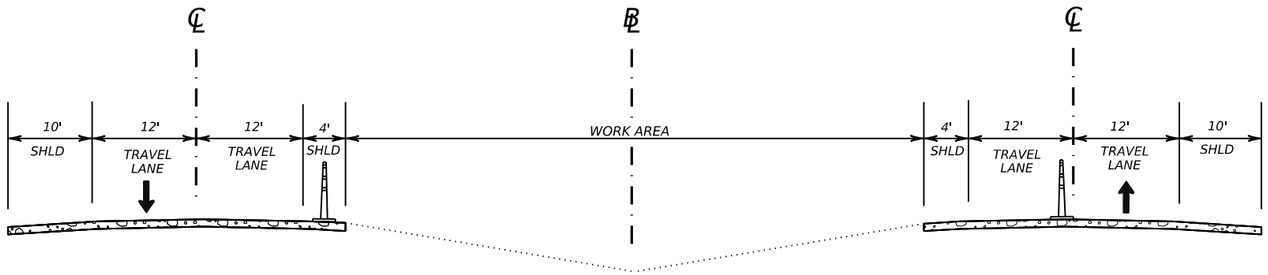


DAILY CLOSURE TYPICAL SECTION
(LT SIDE SIMILAR)
ONLY CLOSE LANE ON SIDE NEAREST TO WORK
TRAFFIC CONTROL DEVICES TO BE MOVED TO INSIDE SHOULDER
AT THE END OF THE WORK DAY OR WHEN NO WORK IS BEING DONE.

NOTE TO CONTRACTOR:

Work may be performed in 2 mile segments only.

US 87 can be worked at the same time as US 84.

All work, including cable installation, must be completed before starting the next 2 mile segment.

PROJECT TRAFFIC CONTROL NOTES (ALL PHASES)

THIS PROJECT IS CONSIDERED STATIONARY WORK. IF MOBILE OPERATIONS ARE REQUESTED, THE STATE WILL PAY FOR ONE DAY OF STATIONARY TMA'S AND THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL OTHER COSTS.

SEQUENCE OF WORK WILL BE APPROVED BY THE ENGINEER.

STANDARD REGULATORY AND WARNING SIGNS WHICH ARE NOT SHOWN ON THE TCP SHEETS SHALL BE IN ACCORDANCE WITH THE CURRENT TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) AND STANARDS BC (1) - (12).

THE CONTRACTOR MAY BE REQUIRED TO FURNISH OTHER BARRICADES AND OTHER TYPES OF DEVICES AS DIRECTED BY THE ENGINEER OR AS INDICATED IN THE TMUTCD, BC, WZ, AND TCP STANDARDS.

ALL PAVEMENT MARKINGS AND SIGNS THAT CONFLICT WITH TRAFFIC MOVEMENTS WILL BE REMOVED. REMOVAL OF ITEM 662 "WORK ZONE PAVEMENT MARKINGS (REMOVABLE)" WILL NOT BE PAID FOR BUT CONSIDERED SUBIDIARY TO ITEM 662.

REFER TO "TREATMENT FOR VARIOUS EDGE CONDITIONS" SHEET FOR EDGE DROPOFF TREATMENT.

ADVISORY SPEED LIMIT SIGNS SHALL BE PLACED AS DIRECTED BY THE ENGINEER.

BARRICADES SHALL NOT BE USED AS SIGN SUPPORTS.

ON ANY SERIES OF TRAFFIC CONTROL DEVICES WHERE REFLECTORS MAY BE USED, LIGHTS WILL BE REQUIRED AT THE BEGINNING AND END OF EACH SERIES.

SIGN, BARRICADES, AND CONES NOT IN USE FOR 3 WORKING DAYS WILL BE REMOVED FROM THE RIGHT-OF-WAY.

SIGNS AT THE BEGINNING AND END OF THE PROJECT SHALL BE IN ACCORDANCE WITH BC (1) - (12).

SIGNS G20-2 AND G20-1aT, OR CW20-1D SIGNS SHALL BE AT EACH INTERSECTING HIGHWAY, CITY STREET, AND COUNTY ROAD.

THE CONTRACTOR WILL CONTACT ADJACENT PROPERTY OWNERS CONCERNING INGRESS AND EGRESS OF THEIR PROPERTY DURING CONSTRUCTION.

THIS ROADWAY SHALL BE CONSIDERED A HIGH SPEED ROADWAY.

UNLESS OTHERWISE STATED IN THE PLANS, FLAGS ATTACHED TO SIGNS ARE REQUIRED.

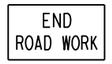
IF USED, PROVIDE VERTICAL PANELS MOUNTED ON FIXED SUPPORTS USING AN APPROVED ADHESIVE.

IF USED, INSTALL BARRIER REFLECTORS ON PORTABLE CONCRETE TRAFFIC BARRIER AS SHOWN ON BC (7).

POST TRAINED FLAGMEN AS NEEDED IN SPECIAL SITUATIONS AS DEEMED NECESSARY BY THE ENGINEER.

Sequence of Work:

1. Set project signs and barricades, and SW3P BMP's.
2. Use repeatable and accurate means to sawcut pavement along the inside shoulder where a crossover is to be removed.
3. Remove all crossovers, including removal of any pipe and/or SETs, signs, and delineators.
4. Blade median ditch as directed.
5. Perform any necessary grading, excavating, earth work, and/or removal for riprap mowstrip.
6. Install drill shafts, socket assemblies, and mowstrip.
7. Backfill mowstrip.
8. Install cable barrier.
9. Shoot emulsion on top of disturbed areas.
10. Final clean up and punch list items.
11. Remove project signs and barricades.



G20-2
48''X24''

G20-1aT
72''X36''

CW20-1D
48''X48''

Mounted back to back.

G20-2
48''X24''

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

TRAFFIC CONTROL NOTES

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		11

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).

2. The development and design of the Traffic Control Plan (TCP)is the responsibility of the Engineer.

3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.

4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.

5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.

6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.

7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.

8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.

10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.

11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.

12. The Engineer has the final decision on the location of all traffic control devices.

13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.

2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.

2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
4-03 7-13	DIST	COUNTY		SHEET NO.
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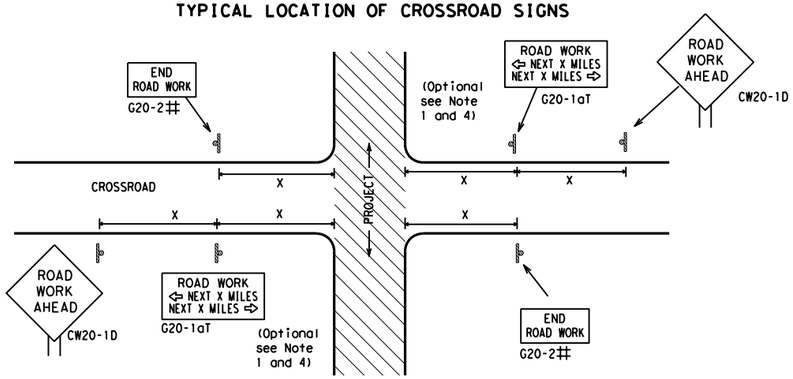
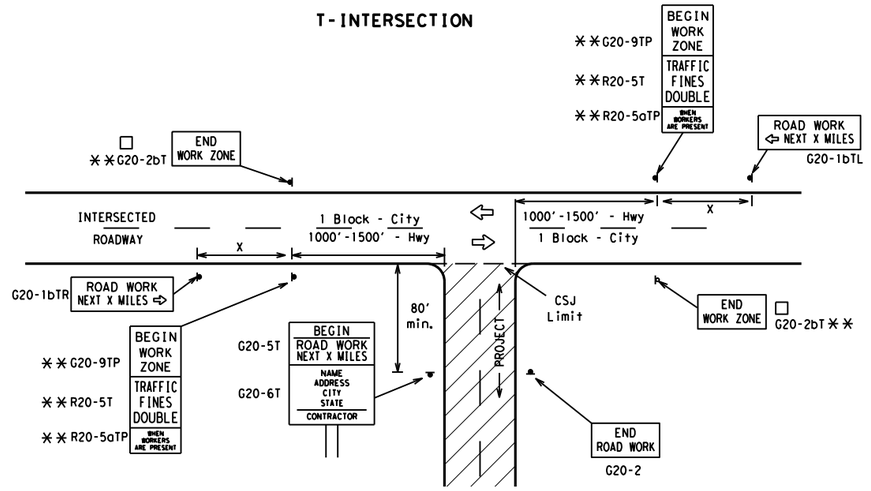
TYPICAL LOCATION OF CROSSROAD SIGNS



May be mounted on back of "ROAD WORK AHEAD"(CW20-1D) sign with approval of Engineer. (See note 2 below)

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D)sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK"(G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume as per TMUTCD Part 5. This information shall be shown in the plans.
3. Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
4. The "ROAD WORK NEXT X MILES"(G20-1aT)sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
5. Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
6. When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
2. If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME"(G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow(G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR)" signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING[1,5,6]

SIZE

Sign Number or Series	Conventional Road	Expressway/ Freeway
CW20[4] CW21 CW22 CW23 CW25	48" x 48"	48" x 48"
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"

SPACING

Posted Speed	Sign △ Spacing "X"
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500[2]
60	600[2]
65	700[2]
70	800[2]
75	900[2]
80	1000[2]
*	*[3]

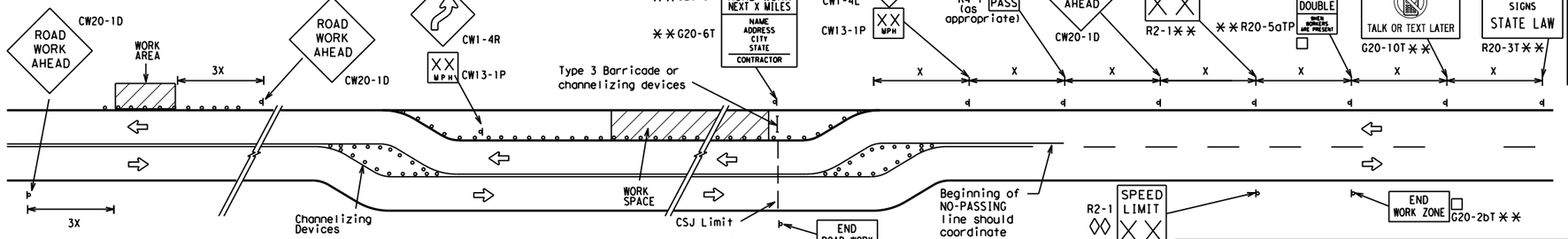
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

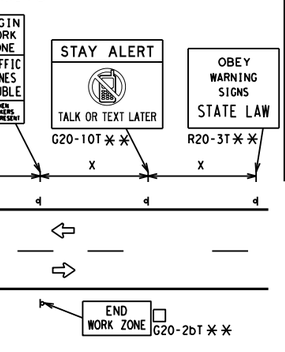
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

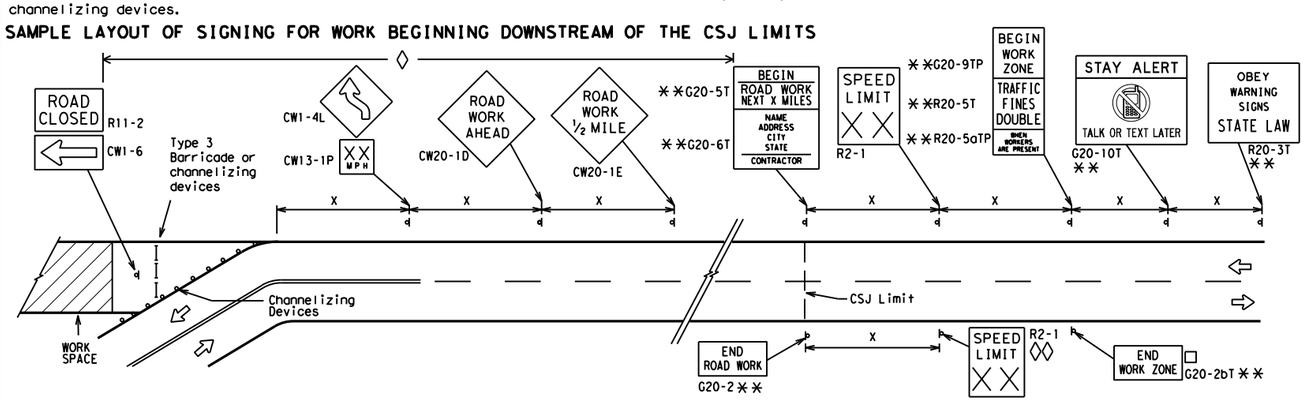


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



NOTES

The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES"(G20-5T)sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.

□ The "BEGIN WORK ZONE"(G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.

** CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.

◊ Area for placement of "ROAD WORK AHEAD" (CW20-1D)sign and other signs or devices as called for on the Traffic Control Plan.

◊◊ Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND	
⊢⊣	Type 3 Barricade
○ ○ ○	Channelizing Devices
▬	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LBB	LUBBOCK, ETC.		13

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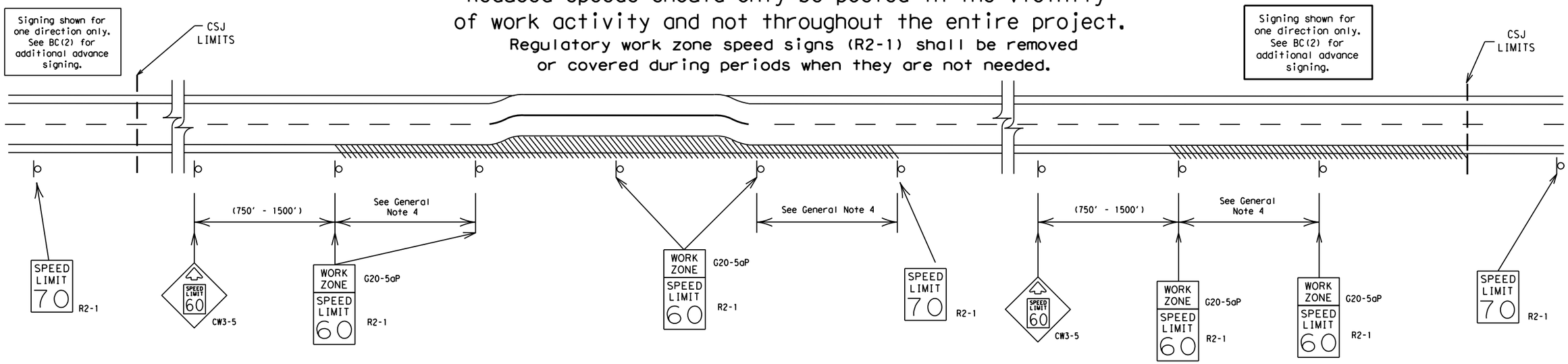
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.

Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the traveled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered.
(See Removing or Covering on BC(4)).

GENERAL NOTES

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
3. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
4. Frequency of work zone speed limit signs should be:
   40 mph and greater 0.2 to 2 miles
   35 mph and less 0.2 to 1 mile
5. Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
6. Fabrication, erection and maintenance of the"ADVANCE SPEED LIMIT"(CW3-5)sign, "WORK ZONE"(G20-5aP) plaque and the "SPEED LIMIT"(R2-1)signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
7. Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Techniques that may help reduce traffic speeds include but are not limited to:
   A. Law enforcement.
   B. Flagger stationed next to sign.
   C. Portable changeable message sign (PCMS).
   D. Low-power (drone) radar transmitter.
   E. Speed monitor trailers or signs.
9. Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
10. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13 5-21	0053	01	136	US 84, ETC.
	DIST	COUNTY		SHEET NO.
	LBB	LUBBOCK, ETC.		14

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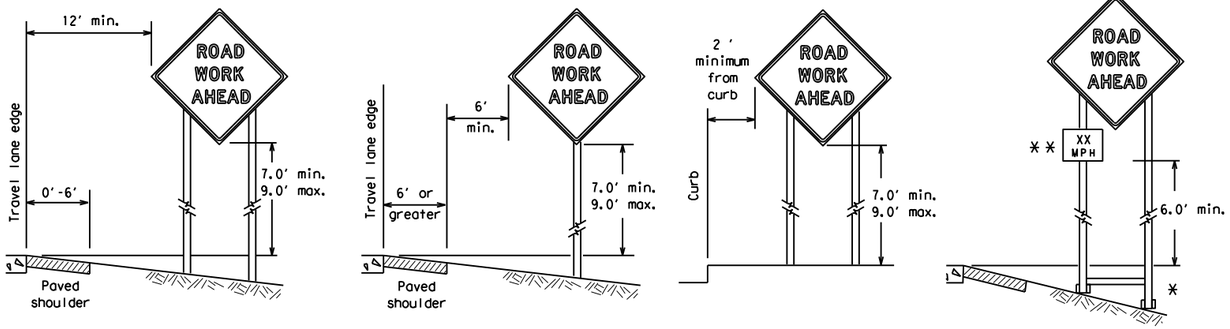
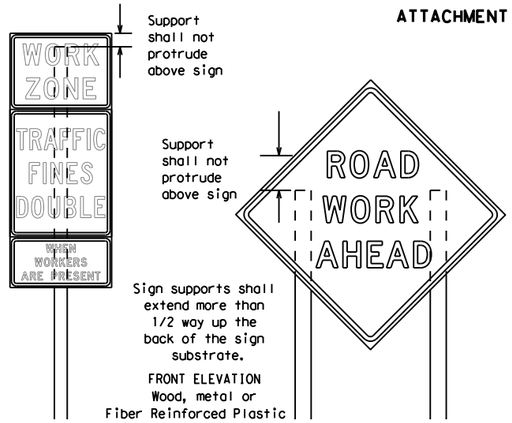
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

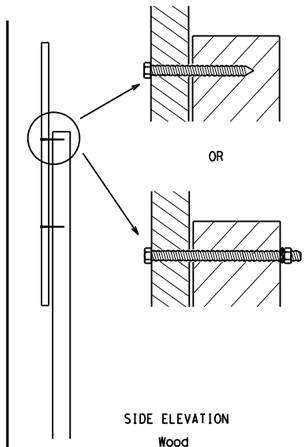


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS





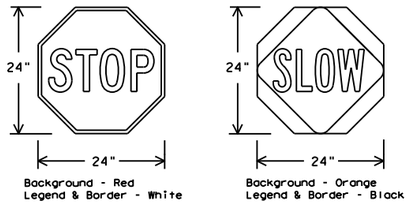
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the spice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
2. STOP/SLOW paddles shall be retroreflectorized when used at night.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (LOGO), or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRS standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. Flags may be used to draw attention to warning signs. When used, the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0053	01	136	US 84, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LBB	LUBBOCK, ETC.		15

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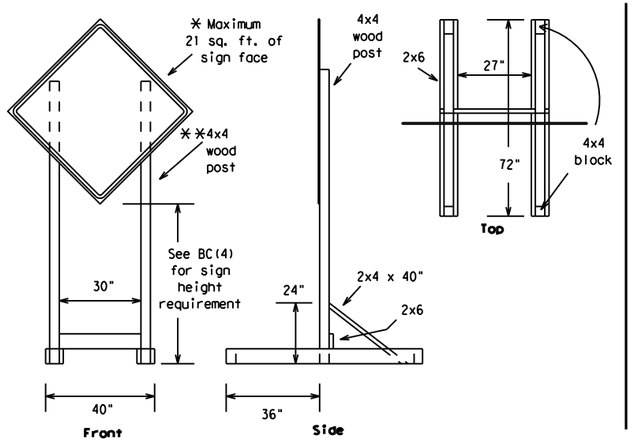
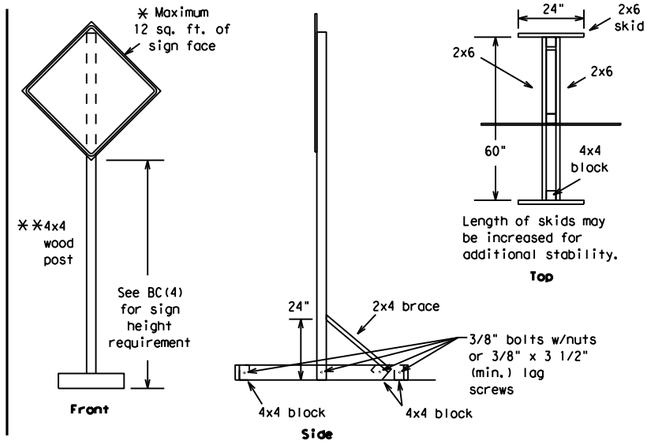
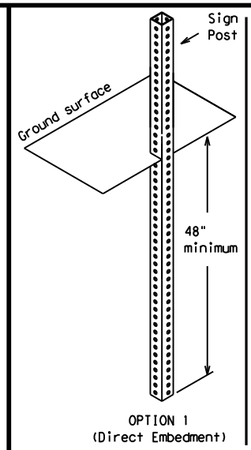
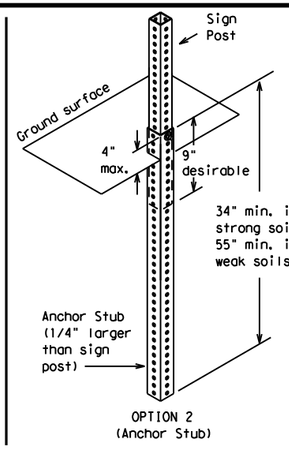


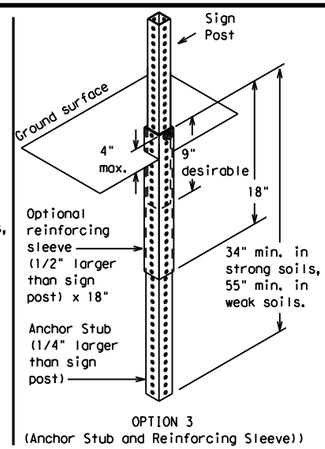


SKID MOUNTED WOOD SIGN SUPPORTS

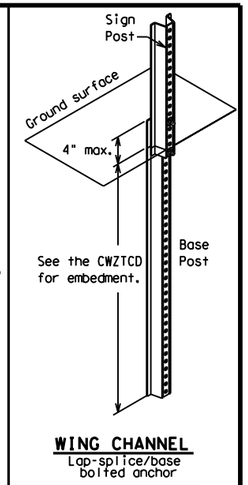
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS







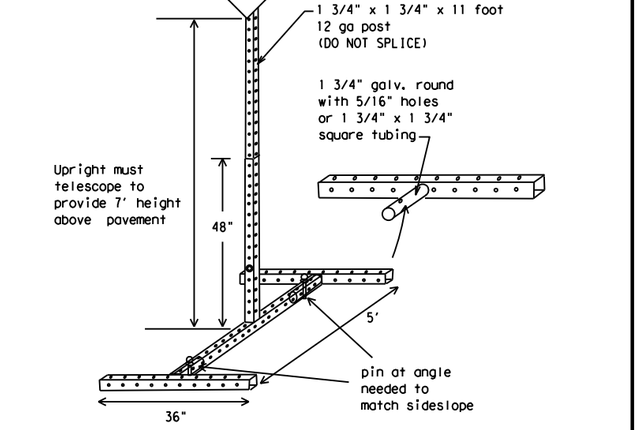
PERFORATED SQUARE METAL TUBING

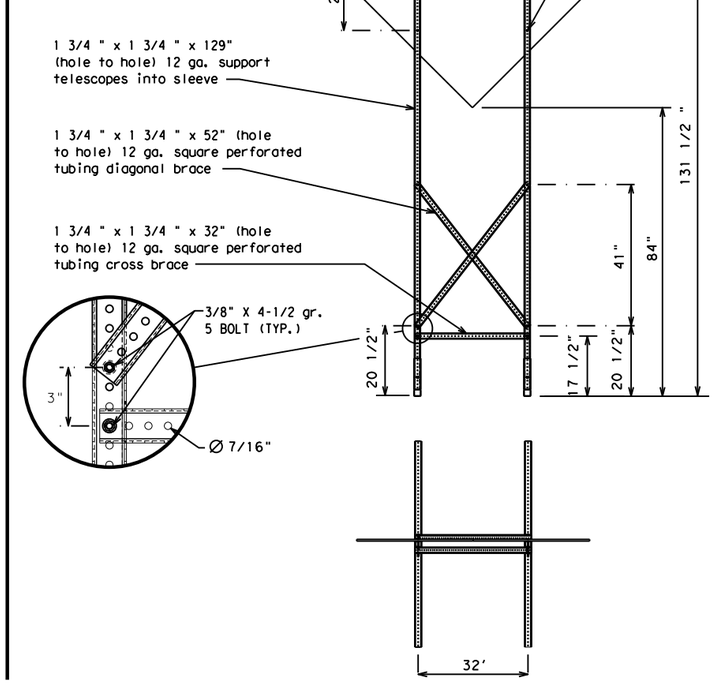


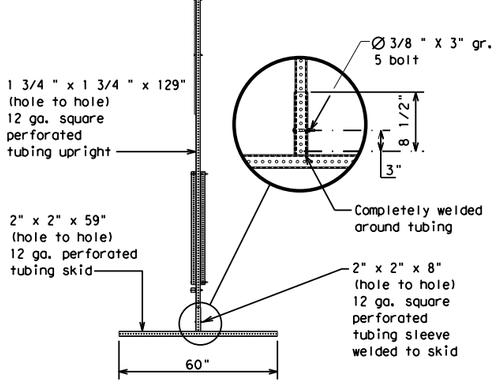
WING CHANNEL
Lap-splice/base bolted anchor

GROUND MOUNTED SIGN SUPPORTS

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support.
The maximum sign square footage shall adhere to the manufacturer's recommendation.
Two post installations can be used for larger signs.







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

WEDGE ANCHORS

Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS

MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

* See BC(4) for definition of "Work Duration."

** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

□ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

PORTABLE CHANGEABLE MESSAGE SIGNS

1. The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
2. Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
3. Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
4. Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
5. Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
6. When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
7. The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
8. The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
9. Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
10. Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
11. Do not use the word "Danger" in message.
12. Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
13. Do not display messages that scroll horizontally or vertically across the face of the sign.
14. The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
15. PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
16. Each line of text should be centered on the message board rather than left or right justified.
17. If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

Roadway designation * IH-number, US-number, SH-number, FM-number

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT
RIGHT X LANES CLOSED	RIGHT X LANES OPEN
CENTER LANE CLOSED	DAYTIME LANE CLOSURES
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE
EXIT CLOSED	RIGHT LN TO BE CLOSED
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI
XXXXXXXX BLVD CLOSED	

Other Condition List

ROADWORK XXX FT	ROAD REPAIRS XXXX FT
FLAGGER XXXX FT	LANE NARROWS XXXX FT
RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
DETOUR X MILE	ROUGH ROAD XXXX FT
ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
BUMP XXXX FT	US XXX EXIT X MILES
TRAFFIC SIGNAL XXXX FT	LANES SHIFT *

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

MERGE RIGHT	FORM X LINES RIGHT
DETOUR NEXT X EXITS	USE XXXXX RD EXIT
USE EXIT XXX	USE EXIT I-XX NORTH
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N
TRUCKS USE US XXX N	WATCH FOR TRUCKS
WATCH FOR TRUCKS	EXPECT DELAYS
EXPECT DELAYS	PREPARE TO STOP
REDUCE SPEED XXX FT	END SHOULDER USE
USE OTHER ROUTES	WATCH FOR WORKERS
STAY IN LANE *	

Location List

AT FM XXXX
BEFORE RAILROAD CROSSING
NEXT X MILES
PAST US XXX EXIT
XXXXXXX TO XXXXXXX
US XXX TO FM XXXX

Warning List

SPEED LIMIT XX MPH
MAXIMUM SPEED XX MPH
MINIMUM SPEED XX MPH
ADVISORY SPEED XX MPH
RIGHT LANE EXIT
USE CAUTION
DRIVE SAFELY
DRIVE WITH CARE

** Advance Notice List

TUE-FRI XX AM- X PM
APR XX-XX X PM-X AM
BEGINS MONDAY
BEGINS MAY XX
MAY X-X XX PM - XX AM
NEXT FRI-SUN
XX AM TO XX PM
NEXT TUE AUG XX
TONIGHT XX PM- XX AM

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

1. Only 1 or 2 phases are to be used on a PCMS.
2. The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
3. A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
4. A Location Phase is necessary only if a distance or location is not included in the first phase selected.
5. If two PCMS are used in sequence, they must be separated by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
6. For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

WORDING ALTERNATIVES

1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
5. ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
6. AHEAD may be used instead of distances if necessary.
7. FT and MI, MILE and MILES interchanged as appropriate.
8. AT, BEFORE and PAST interchanged as needed.
9. Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
2. When symbol signs, such as the "Flagger Symbol"(CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
3. When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
4. A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

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9-07 8-14	DIST	COUNTY		SHEET NO.
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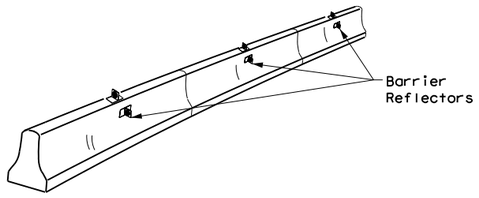
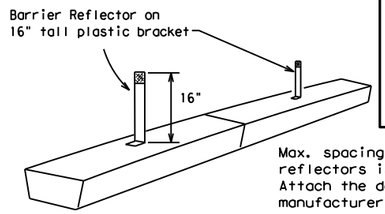
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



CONCRETE TRAFFIC BARRIER (CTB)

3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional)while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.

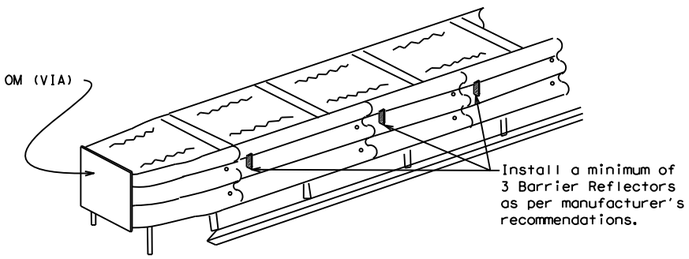


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

LOW PROFILE CONCRETE BARRIER (LPCB)

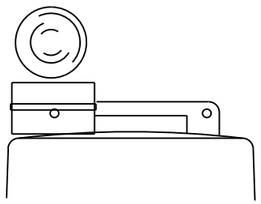


DELINEATION OF END TREATMENTS

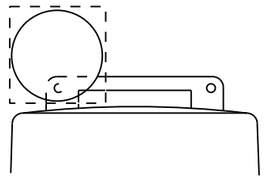
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the apppropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

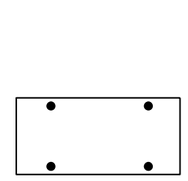
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

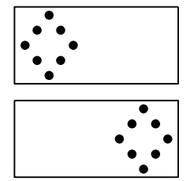
Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

1. The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
4. The Flashing Arrow Board should be able to display the following symbols:

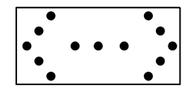


4 CORNER CAUTION

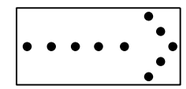
OR



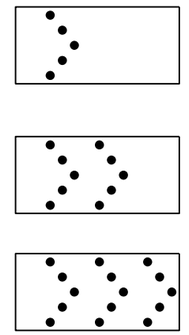
ALTERNATING DIAMOND CAUTION



DOUBLE ARROW



RIGHT/LEFT ARROW
(right arrow shown; left is similar)



RIGHT/LEFT SEQUENTIAL CHEVRON
(right chevron shown; left is similar)

5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
8. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LBB	LUBBOCK, ETC.		18

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GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

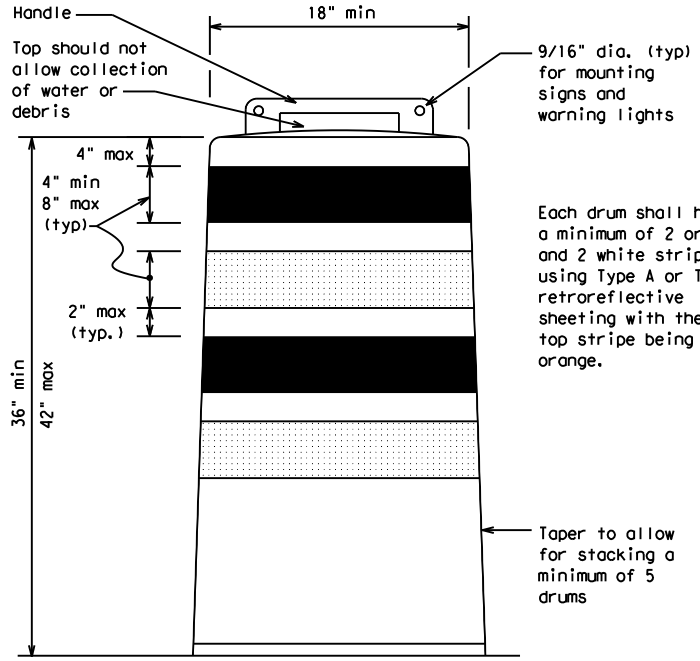
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

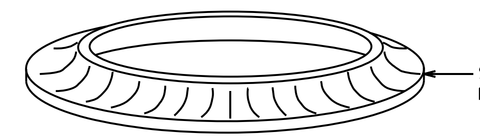
RETROREFLECTIVE SHEETING

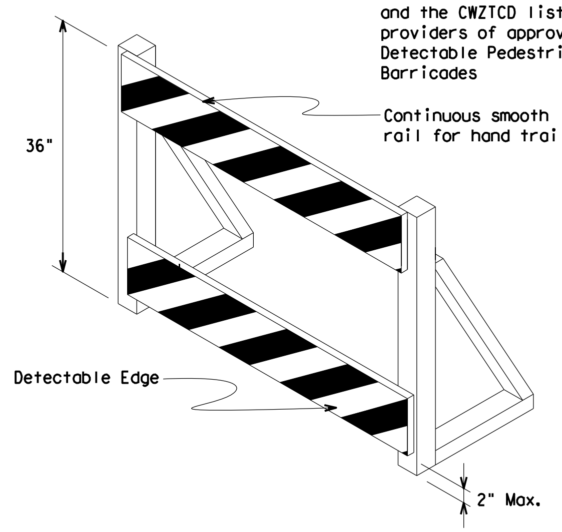
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
5. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.

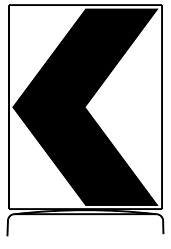




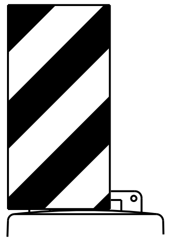


DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

SHEET 8 OF 12

Texas Department of Transportation
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT 0053	SECT 01	JOB 136	HIGHWAY US 84, ETC.
REVISIONS 4-03 8-14 9-07 5-21 7-13	DIST LBB	COUNTY LUBBOCK, ETC.		SHEET NO. 19

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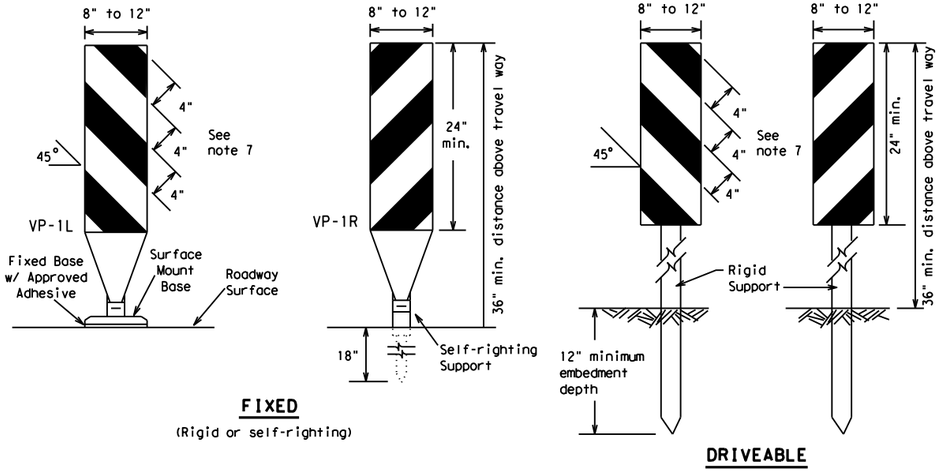
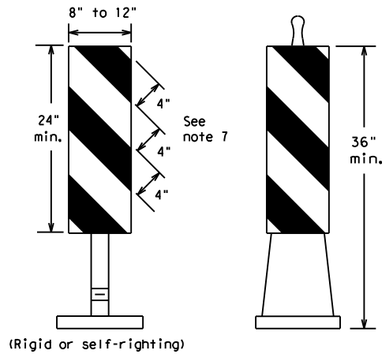


FIXED
(Rigid or self-righting)

DRIVEABLE

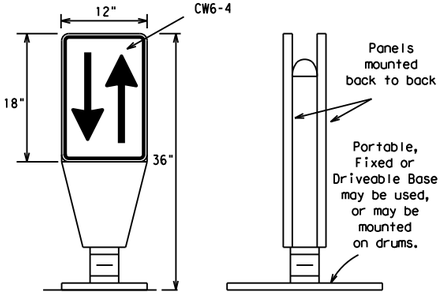


(Rigid or self-righting)

PORTABLE

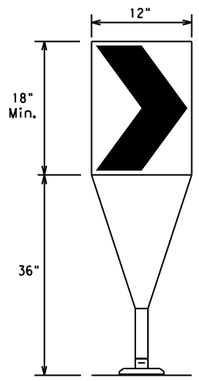
VERTICAL PANELS (VPs)

1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



1. Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
2. The OTLD may be used in combination with 42" cones or VPs.
3. Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
4. The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

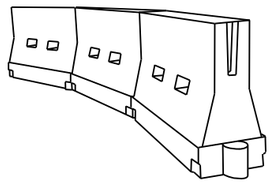
OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

GENERAL NOTES

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L = WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.)
S=Posted Speed (MPH)

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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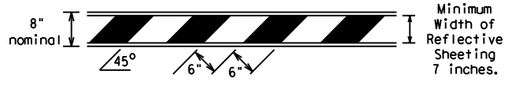
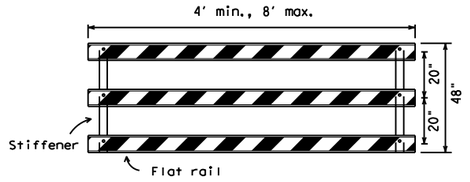
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



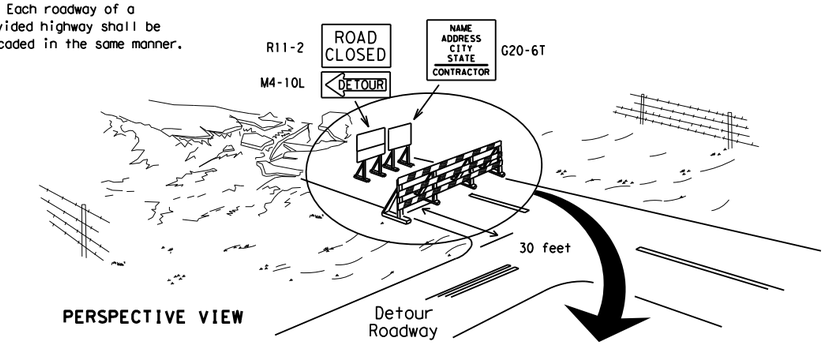
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

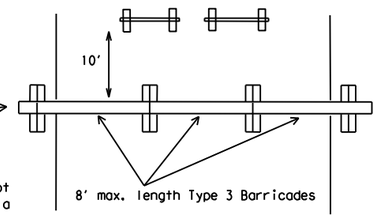
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

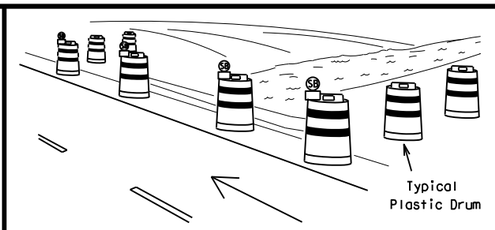
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

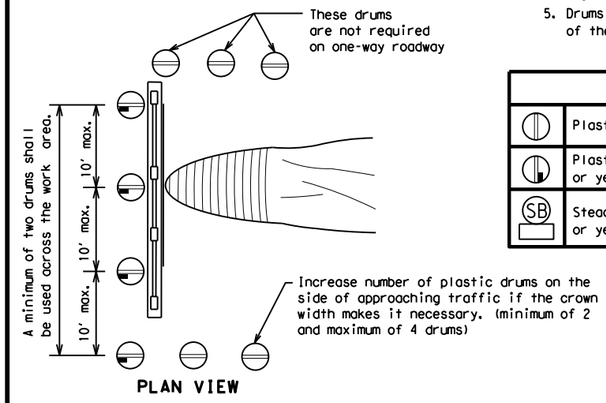
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

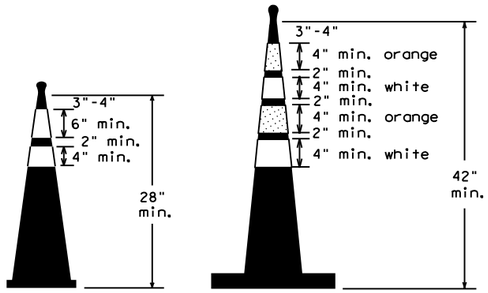
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



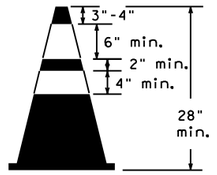
LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

PLAN VIEW

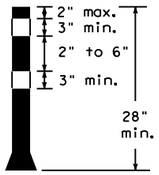
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

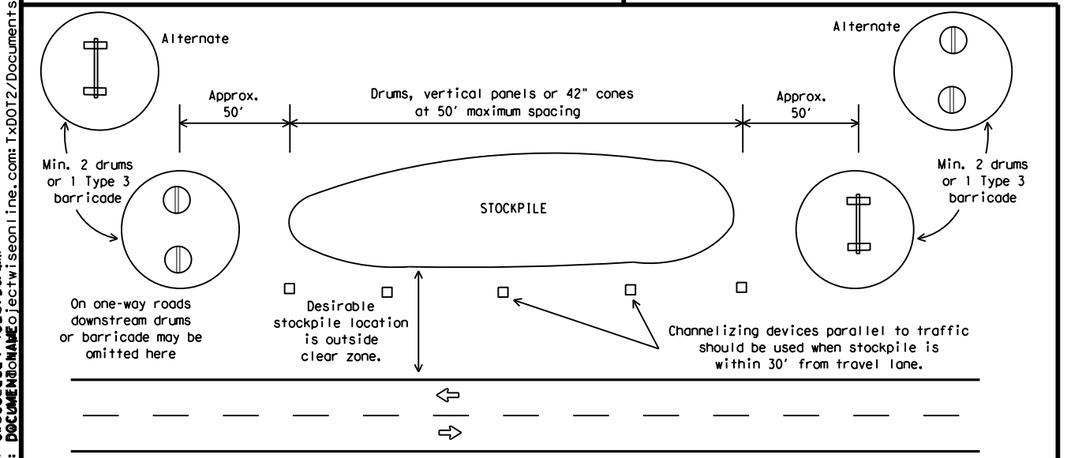


Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LBB	LUBBOCK, ETC.		21

DATE: 07/30/2024 10:56:19 AM
FILE: DOCUMENT NAME: c:\projectwiseonline.com:TxDOT2\Documents\05 - LBB\Design Projects\0053011364 - Design\Plan Set\2. TCP\Standards\bc-21.dgn

WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
2. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

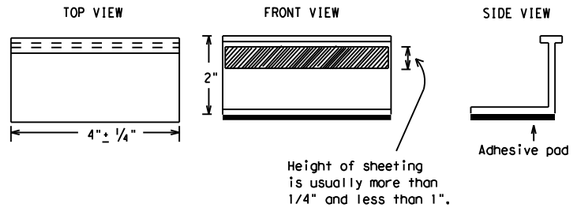
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	LBB	LUBBOCK, ETC.		22
11-02 8-14				

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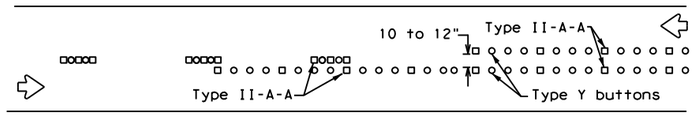
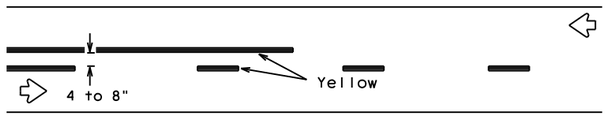
FILE: DOCUMENT NAME: c:\projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/00530136/4 - Design/Plan Set/2. TCP/Standards/bc-21.dgn

PAVEMENT MARKING PATTERNS

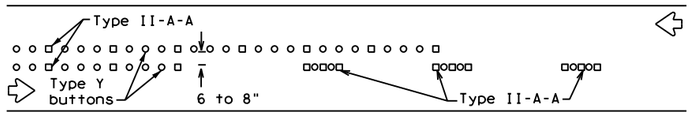
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



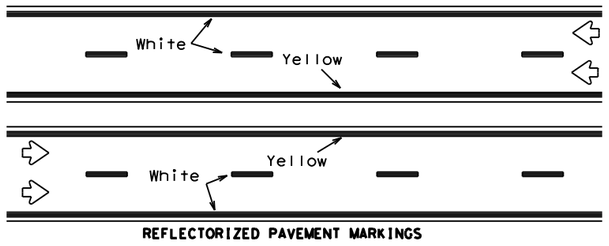
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



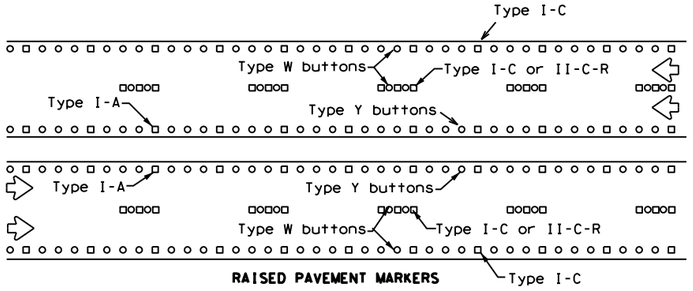
RAISED PAVEMENT MARKERS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer.
Prefabricated markings may be substituted for reflectorized pavement markings.

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



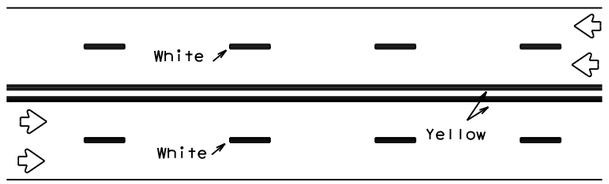
REFLECTORIZED PAVEMENT MARKINGS



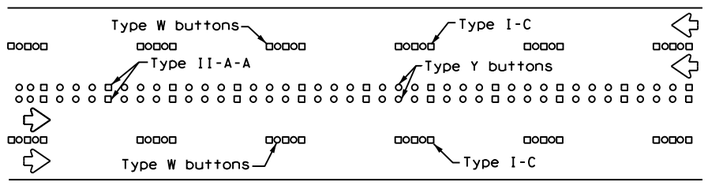
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



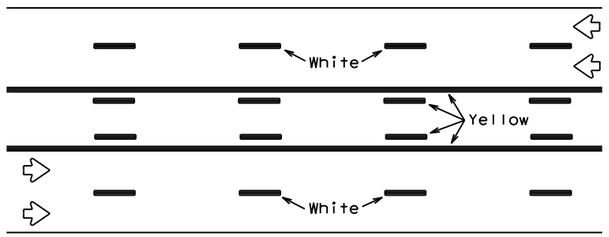
REFLECTORIZED PAVEMENT MARKINGS



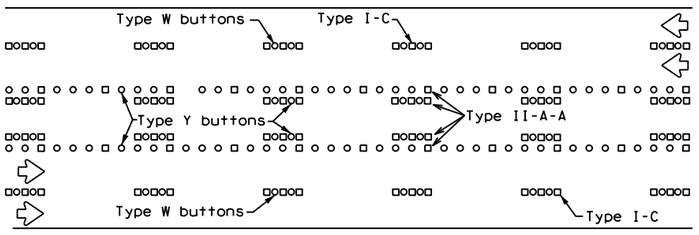
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

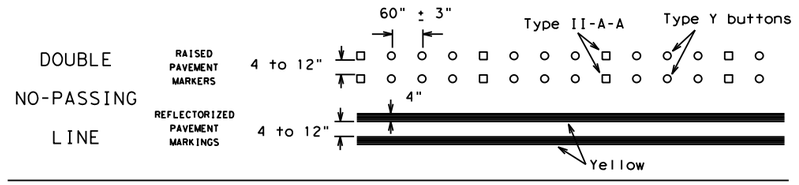
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

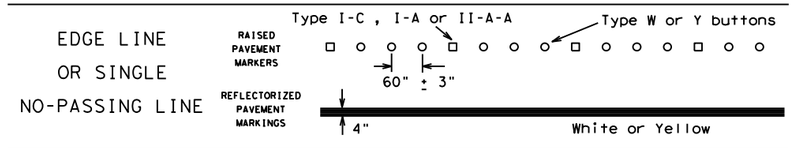
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

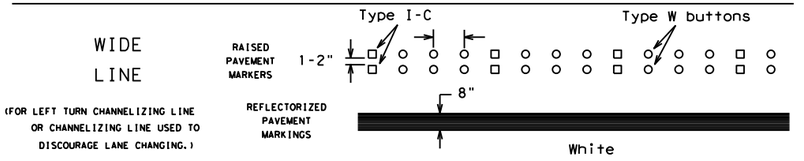


EDGE LINE OR SINGLE NO-PASSING LINE



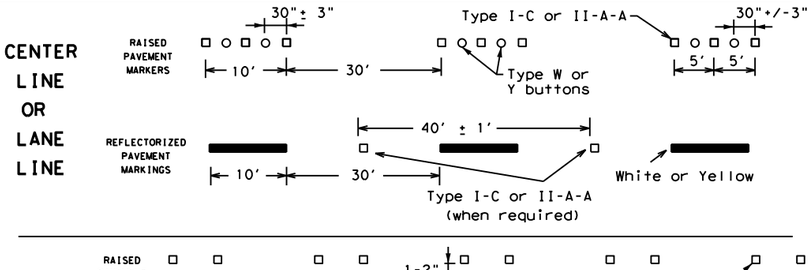
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

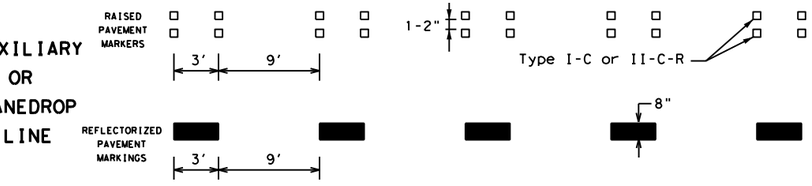


BROKEN LINES

CENTER LINE OR LANE LINE

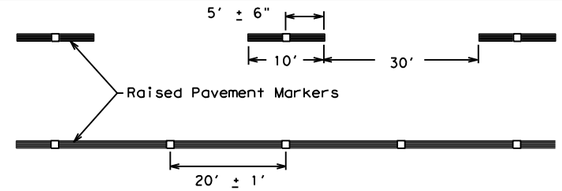


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0053	01	136	US 84, ETC.
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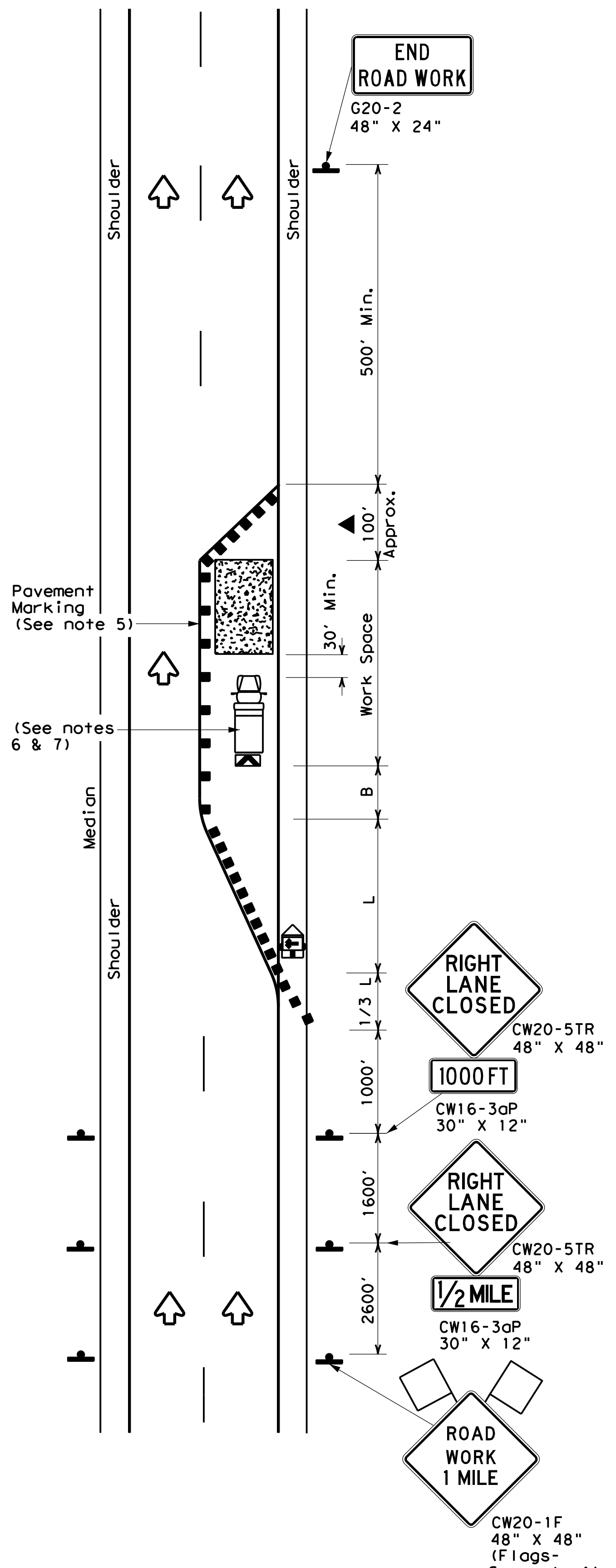
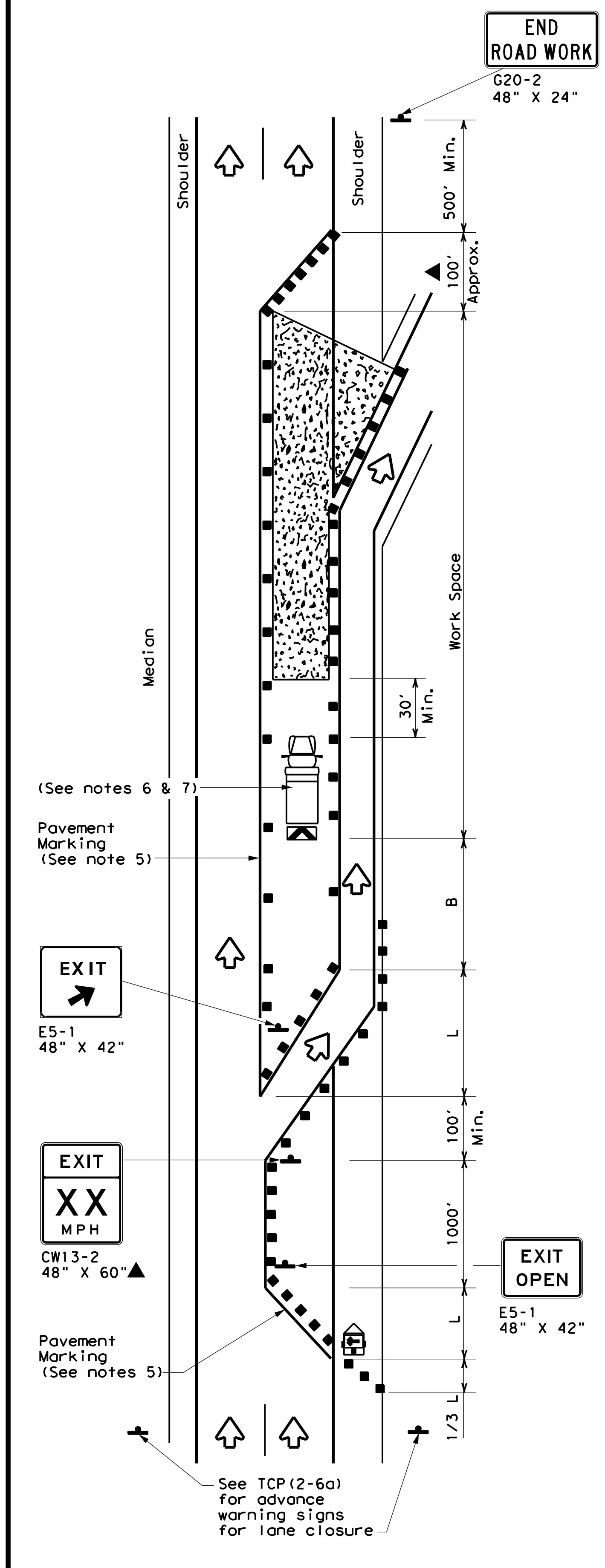
	LBB	LUBBOCK, ETC.		23



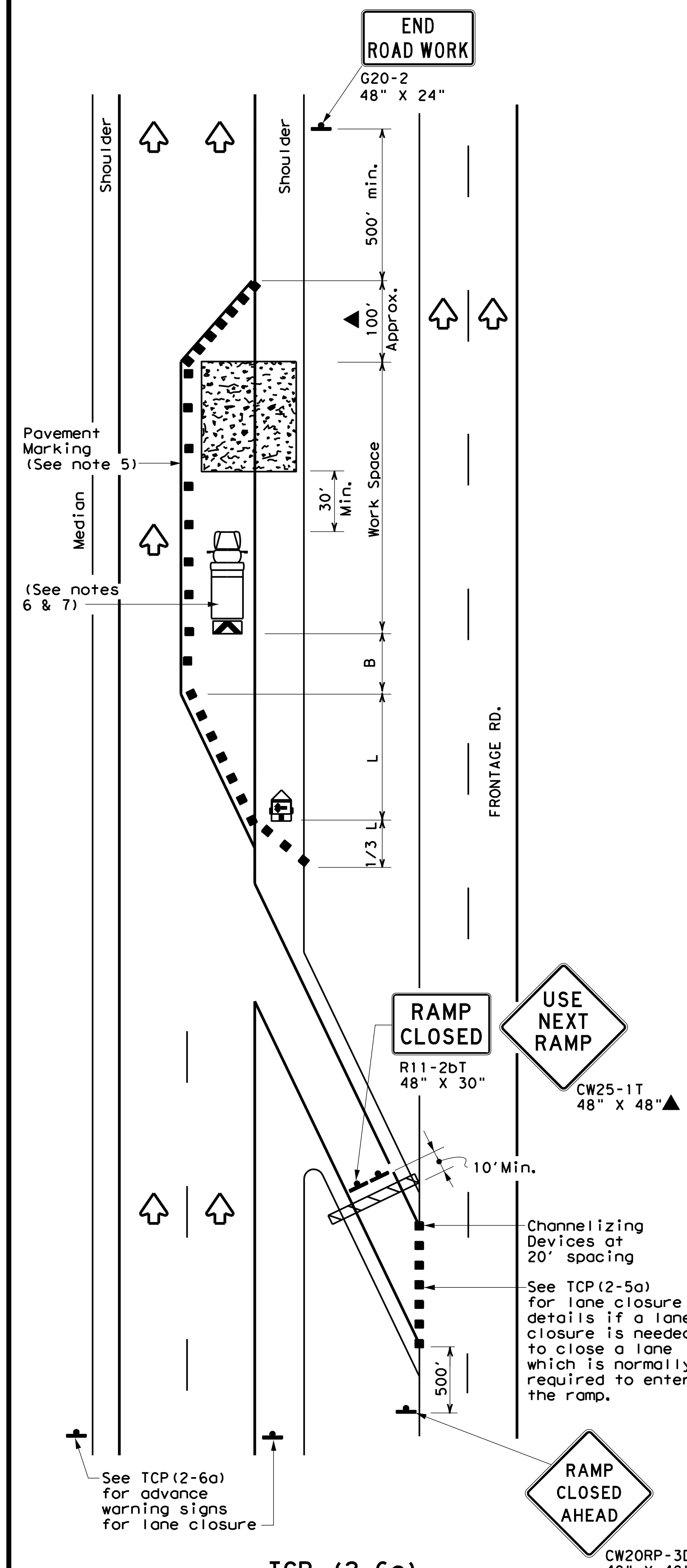
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

LEGEND

Symbol	Description	Symbol	Description
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	$L = WS$	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on everyother channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
5. The placement of pavement markings may be omitted on Intermediate-term stationary work zones with the approval of the Engineer.
6. Shadow Vehicle with TMA and high intensity rotating, flashing,oscillating or strobe lights. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS

TCP(2-6)-18

FILE: tcp2-6-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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	LBB		LUBBOCK, ETC.	24

166

DATE:
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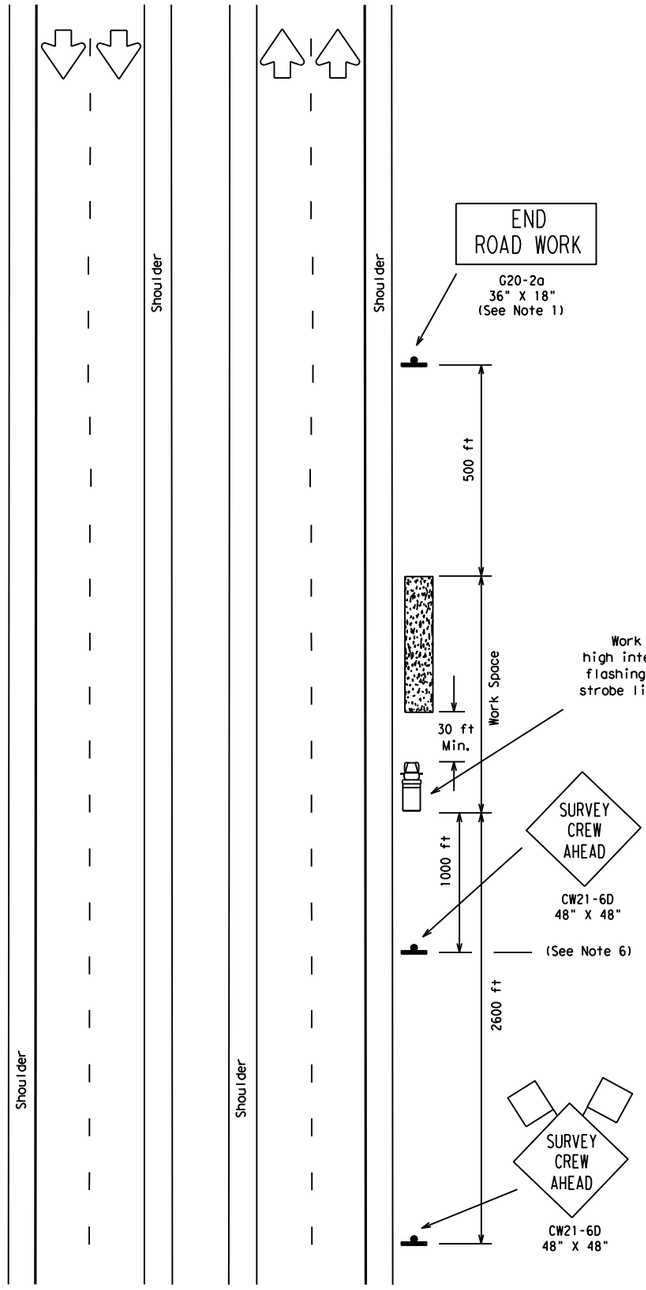
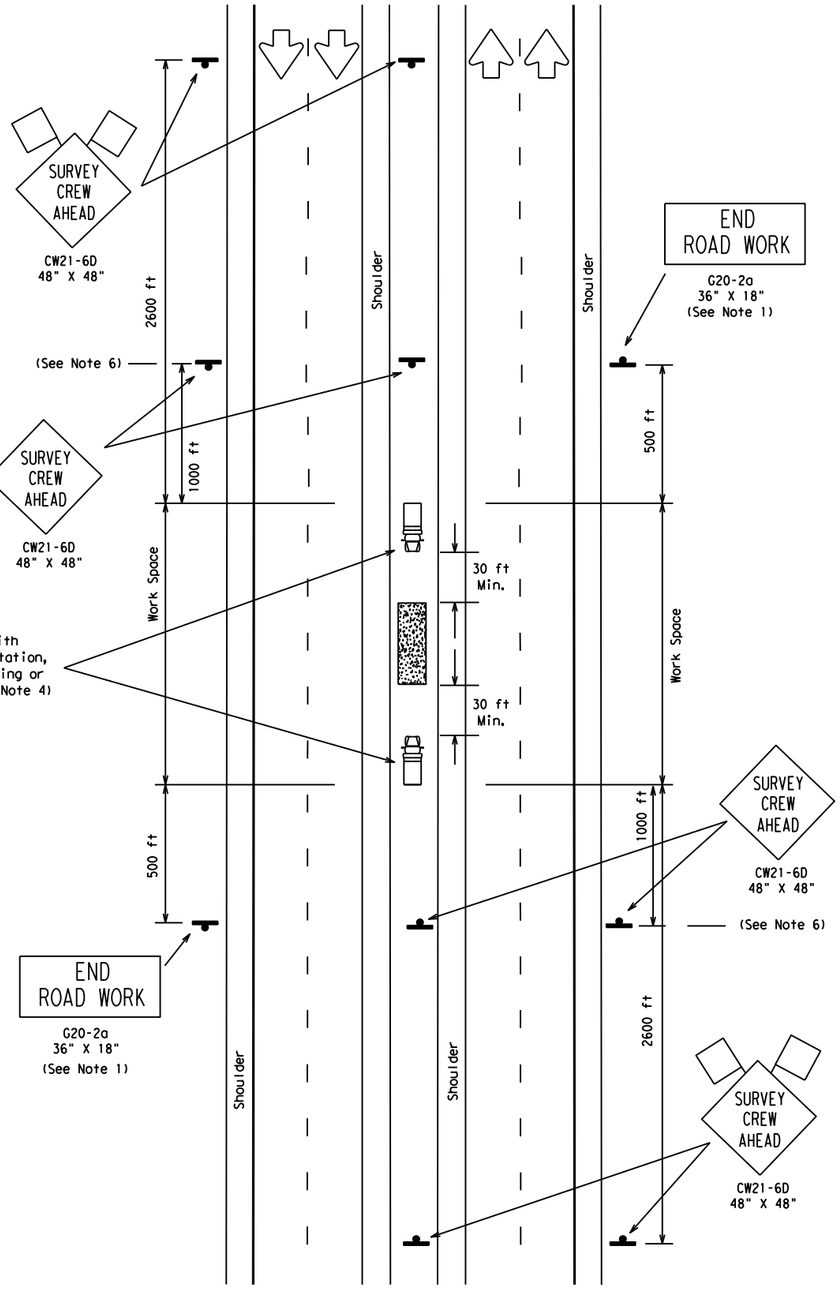


TCP (S-4a)
WORK OFF RIGHT SHOULDER
OF DIVIDED ROADWAYS



TCP (S-4b)
WORK IN MEDIAN
OF DIVIDED ROADWAYS

Posted Speed*	Formula	Minimum Desirable Taper Lengths** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'	90'
35		205'	225'	245'	35'	70'-90'	160'	120'
40		265'	295'	320'	40'	80'-100'	240'	155'
45	L=WS	450'	495'	540'	45'	90'-110'	320'	195'
50		500'	550'	600'	50'	100'-125'	400'	240'
55		550'	605'	660'	55'	110'-140'	500'	295'
60		600'	660'	720'	60'	120'-150'	600'	350'
65		650'	715'	780'	65'	130'-165'	700'	410'
70		700'	770'	840'	70'	140'-175'	800'	475'
75		750'	825'	900'	75'	150'-185'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

DEFINITIONS:
SHORT DURATION - work that occupies a location up to 1 hour.
SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:

1. The G20-2a "END ROAD WORK" sign may be omitted for short duration (less than 1 hour) work.
2. When median work is protected on one side by existing median barriers, signing and protection vehicle may be omitted for the protected direction only.
3. CW20-1D "ROAD WORK AHEAD" signs may be substituted for "SURVEY CREW AHEAD" signs.
1. 4. A Shadow Vehicle with a TMA and flashing warning lights/arrow panel in caution mode may be used in lieu of the Work Vehicle to protect the work space.
5. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads is desirable, but is not required when working less than 15 minutes in area of the side road, as determined by the Engineer.
6. The CW21-6D "SURVEY CREW AHEAD" sign placed at 1000' ahead of the work space is optional, at the discretion of the Engineer. The signs shown at 2600' from the work space are required.
7. Cones may be placed at edge of pavement adjacent to the work space to enhance safety.

WHENEVER POSSIBLE, SURVEY PARTIES SHOULD AVOID, BY THE USE OF OFFSET LINES, ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

8-18-08 Revision
1 Corrected misspelling.

Texas Department of Transportation
Traffic Operations Division

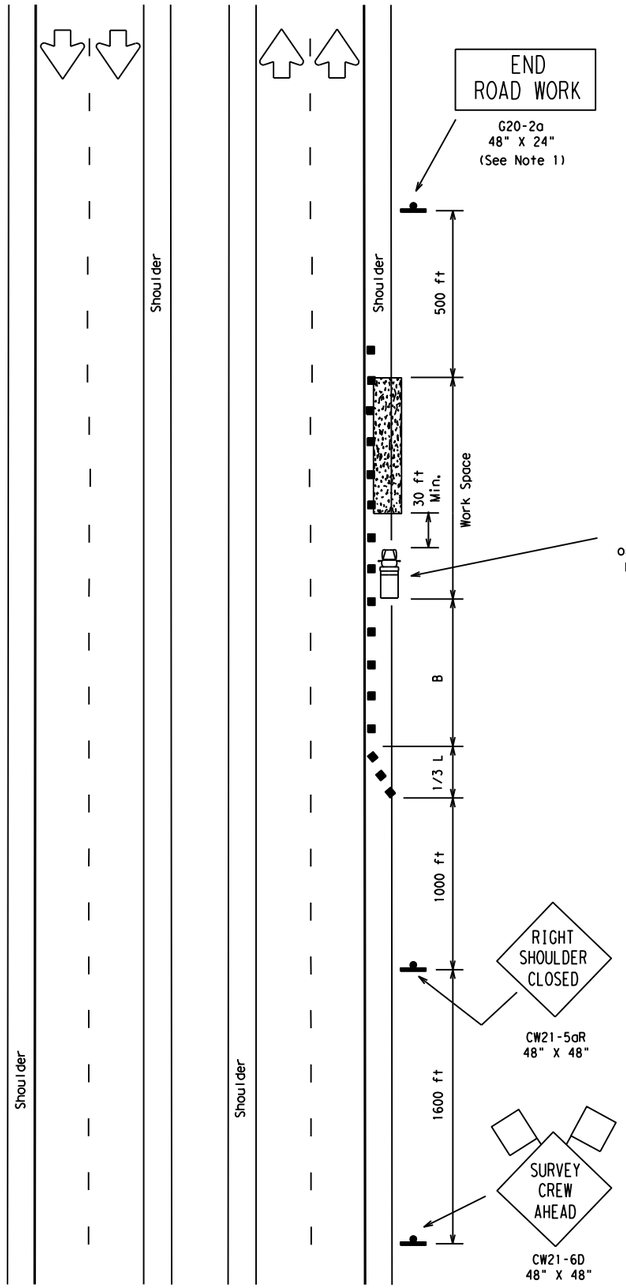
TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-4)-08A

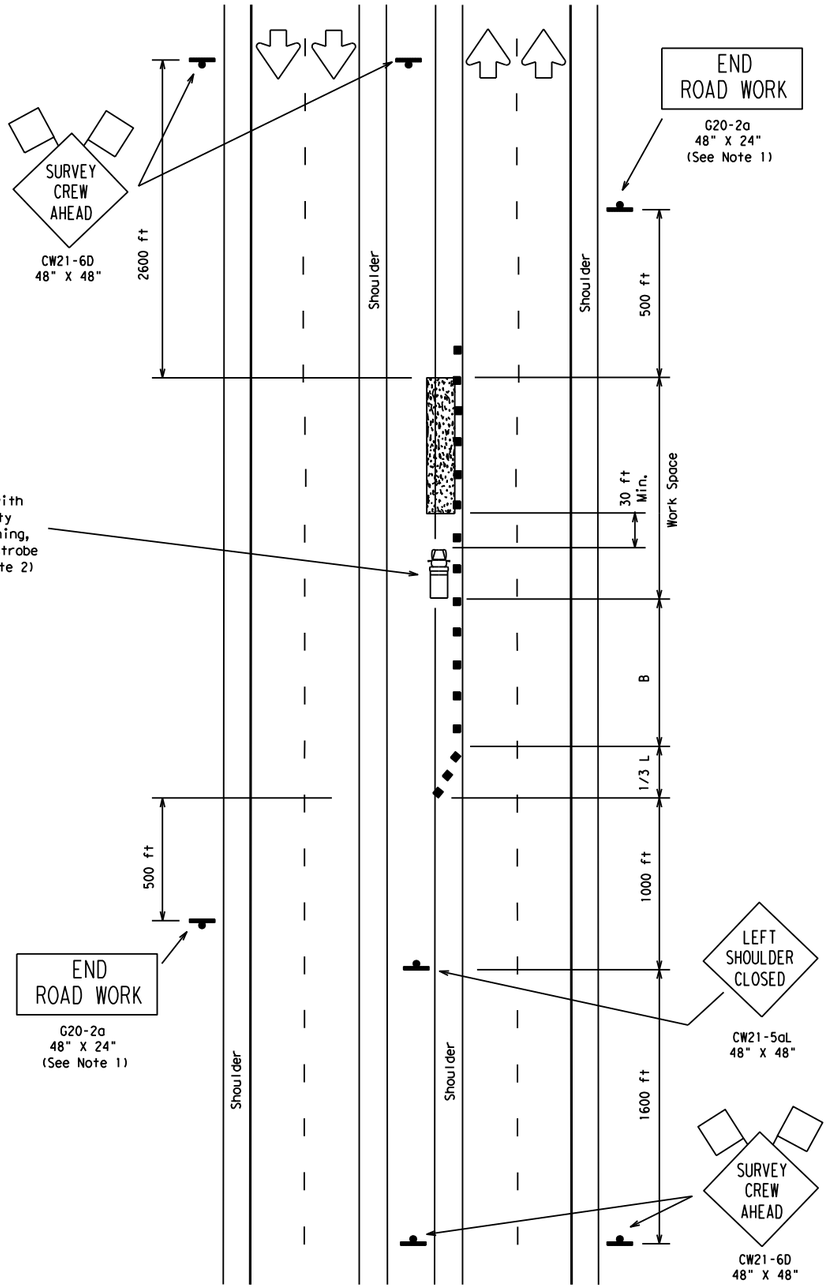
REVISIONS
8-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		25

DATE:
FILE:



TCP (S-5a)
WORK ON RIGHT SHOULDER
OF DIVIDED ROADWAYS



TCP (S-5b)
WORK ON MEDIAN SHOULDER
OF DIVIDED ROADWAYS

WHENEVER POSSIBLE, SURVEY PARTIES SHOULD AVOID, BY THE USE OF OFFSET LINES, ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'	90'
35		205'	225'	245'	35'	70'-90'	160'	120'
40		265'	295'	320'	40'	80'-100'	240'	155'
45	L=WS	450'	495'	540'	45'	90'-110'	320'	195'
50		500'	550'	600'	50'	100'-125'	400'	240'
55		550'	605'	660'	55'	110'-140'	500'	295'
60		600'	660'	720'	60'	120'-150'	600'	350'
65		650'	715'	780'	65'	130'-165'	700'	410'
70		700'	770'	840'	70'	140'-175'	800'	475'
75		750'	825'	900'	75'	150'-185'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

DEFINITIONS:
SHORT DURATION - work that occupies a location up to 1 hour.
SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:

1. The G20-2a "END ROAD WORK" sign may be omitted for short duration (less than 1 hour) work.
2. For short duration work, the Shadow Vehicle with TMA may be replaced by another Work Vehicle with high intensity rotating, flashing or strobe lights.
3. Shadow Vehicles with a TMA are desirable when workers or equipment are in the work space. When approved by the engineer, Type III barricades or other channelizing devices may be substituted for the Shadow Vehicle.
4. If shoulders are not present, the 1/3L shoulder taper is to be omitted and four channelizing devices shall be placed in front of the arrow panel, perpendicular to traffic.
5. CW20-1D "ROAD WORK AHEAD" signs may be substituted for CW21-6D "SURVEY CREW AHEAD" signs.
6. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads is desirable, but is not required when working less than 15 minutes in area of the side road, as determined by the Engineer.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-5)-08

REVISIONS

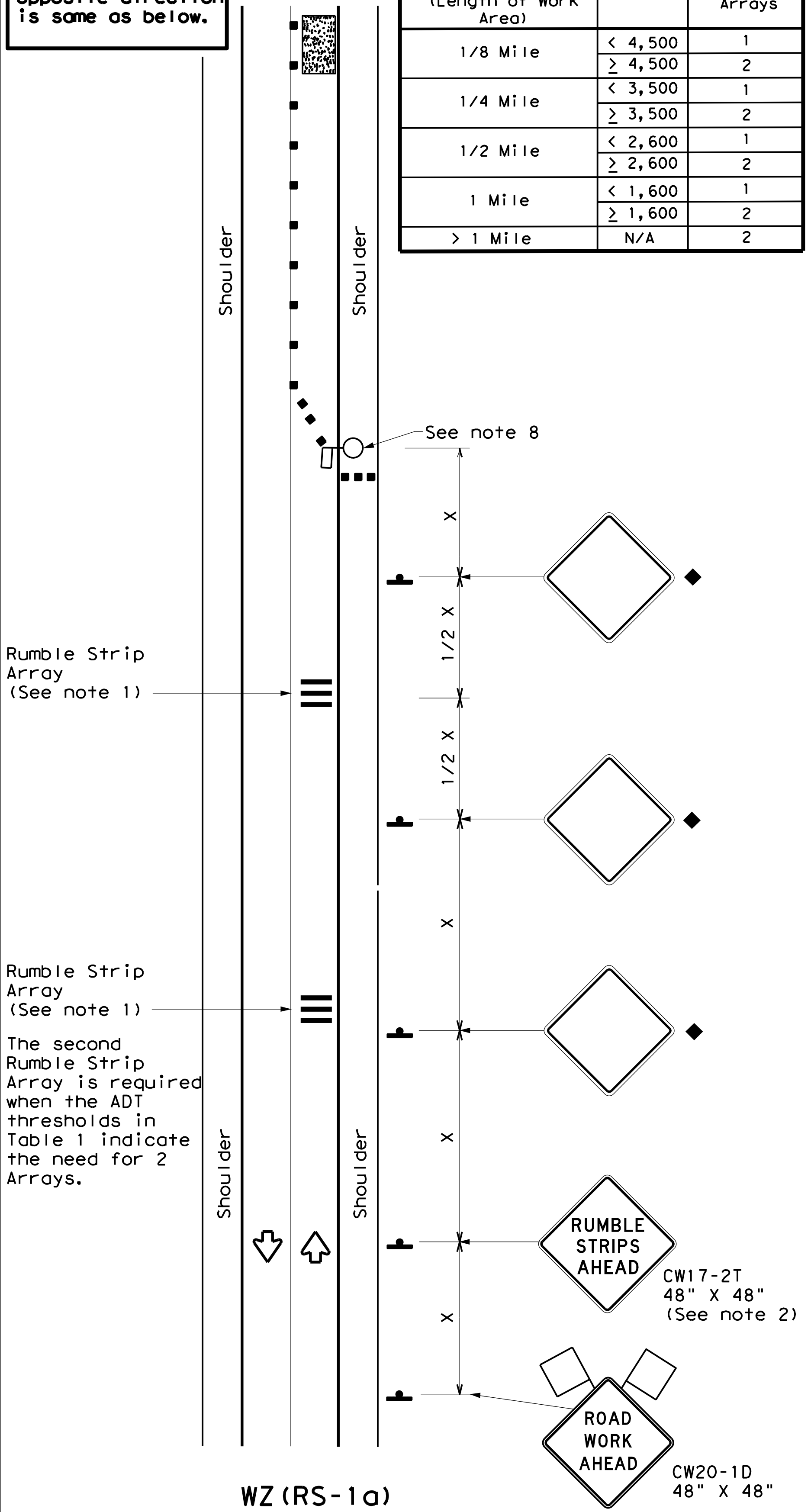
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK		26

Warning sign and rumble strip sequence in opposite direction is same as below.

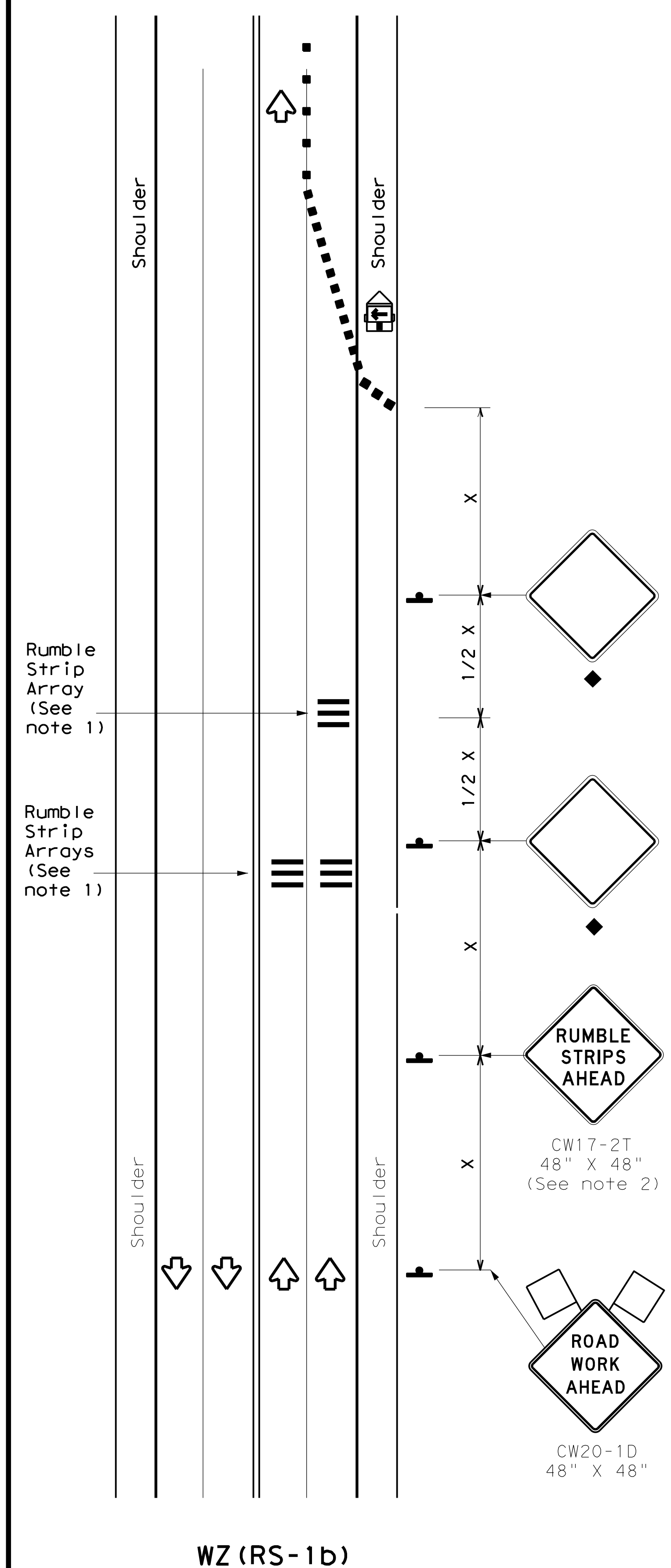
TABLE 1

Flagger to Flagger (Length of Work Area)	ADT	# of Rumble Strip Arrays
1/8 Mile	< 4,500	1
	≥ 4,500	2
1/4 Mile	< 3,500	1
	≥ 3,500	2
1/2 Mile	< 2,600	1
	≥ 2,600	2
1 Mile	< 1,600	1
	≥ 1,600	2
> 1 Mile	N/A	2



WZ(RS-1a)

RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



WZ(RS-1b)

RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

1. Each Rumble Strip Array should consist of three rumble strips spaced center to center at the spacing shown in Table 2, placed transverse across the lane at locations shown.
2. The CW17-2T "RUMBLE STRIPS AHEAD" sign should be located after the CW20-1D "ROAD WORK AHEAD sign and spaced as shown. If traffic is observed to be queuing, or is expected to queue beyond the Rumble Strips, the CW17-2T sign and the first Rumble Strip Array may be located upstream of the CW20-1D sign as necessary to provide needed warning.
3. Temporary Rumble Strips will be considered subsidiary to Item 502, and shall be a product listed on the Compliant Work Zone Traffic Control Devices.
4. Remove Temporary Rumble Strips before removing the advanced warning signs.
5. Temporary Rumble Strips should not be used on horizontal curves, loose gravel, soft or bleeding asphalt, heavily rutted pavements or unpaved surfaces.
6. Temporary Rumble Strips shall be installed and maintained as per manufacturer's recommendations.
7. This standard sheet shall be used in conjunction with other appropriate TCP standard, TMUTCD typical application or project specific detail for the project.
8. The one-lane two-way application may utilize a flagger, an Automated Flagger Assistance Device (AFAD) or a Portable Traffic Signal (PTS).
9. Replace defective Temporary Rumble Strips as directed by the Engineer.
10. Temporary Rumble Strips may be used on freeways or expressways based on engineering judgment and written direction from the Engineer.

TABLE 2

Speed	Approximate distance between strips in an array
≤ 40 MPH	10'
> 40 MPH & ≤ 55 MPH	15'
= 60 MPH	20'
≥ 65 MPH	* 35'+

LEGEND

Symbol	Description	Symbol	Description
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Panel		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT)
S=Posted Speed(MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

◆ **Signs are for illustrative purposes only. Signs required may vary depending on the TCP, TMUTCD Typical Application, or project specific details for the project.**

* **For posted speeds in excess of 65 MPH, it is recommended that spacing is increased as speed limits increase. Increasing space between rumble strips will improve effectiveness.**

Texas Department of Transportation

Traffic Safety Division Standard

TEMPORARY RUMBLE STRIPS

WZ(RS)-22

FILE: wzrs22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2012	CONT 0053	SECT 01	JOB 136	HIGHWAY US 84, ETC.
REVISIONS 2-14 1-22 4-16	DIST LBB	COUNTY LUBBOCK, ETC.		SHEET NO. 27

117

DATE: 1/30/2024 1:27:40 PM
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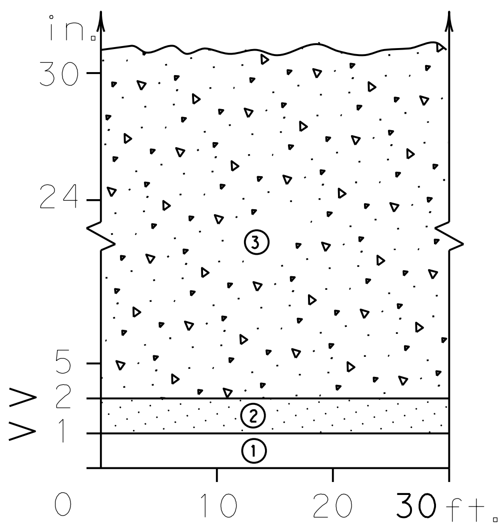
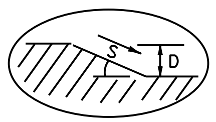
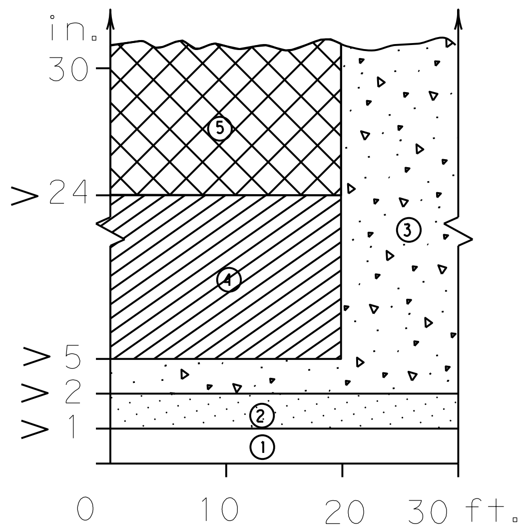
DEFINITION OF TREATMENT ZONES FOR VARIOUS EDGE CONDITIONS

Edge Height (D) in Inches versus Lateral Clearance (Y) in Feet

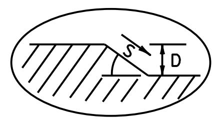


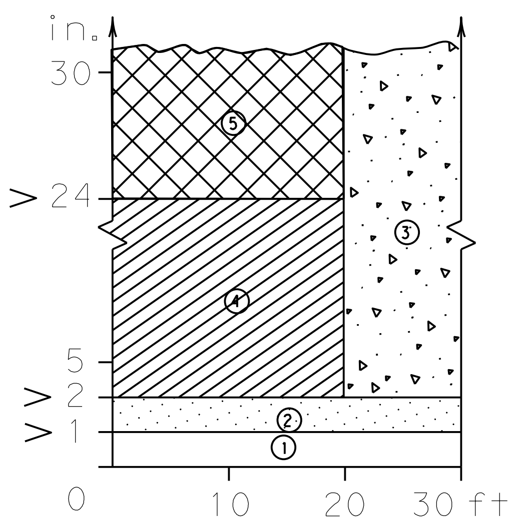
Edge Condition I
S = (3:1) (or flatter)



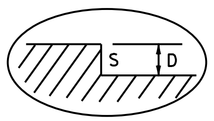


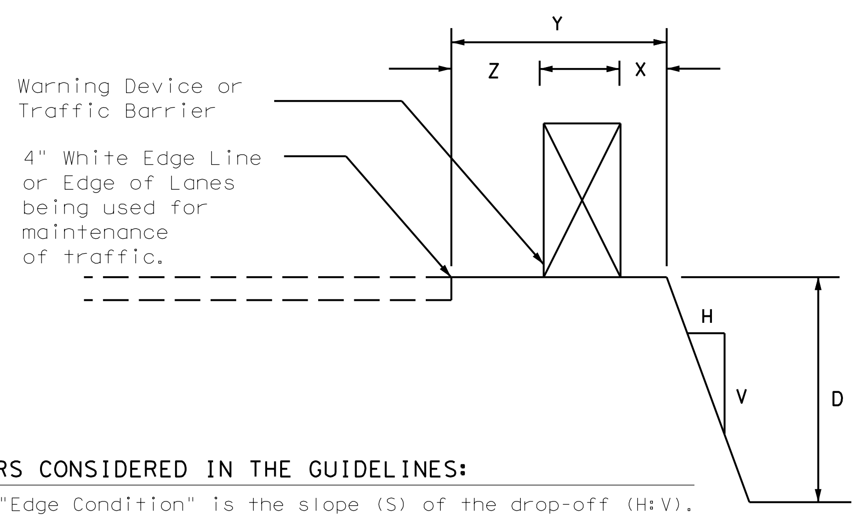
Edge Condition II
S = ((2.99):1) to (1:1)





Edge Condition III
S is steeper than (1:1)





FACTORS CONSIDERED IN THE GUIDELINES:

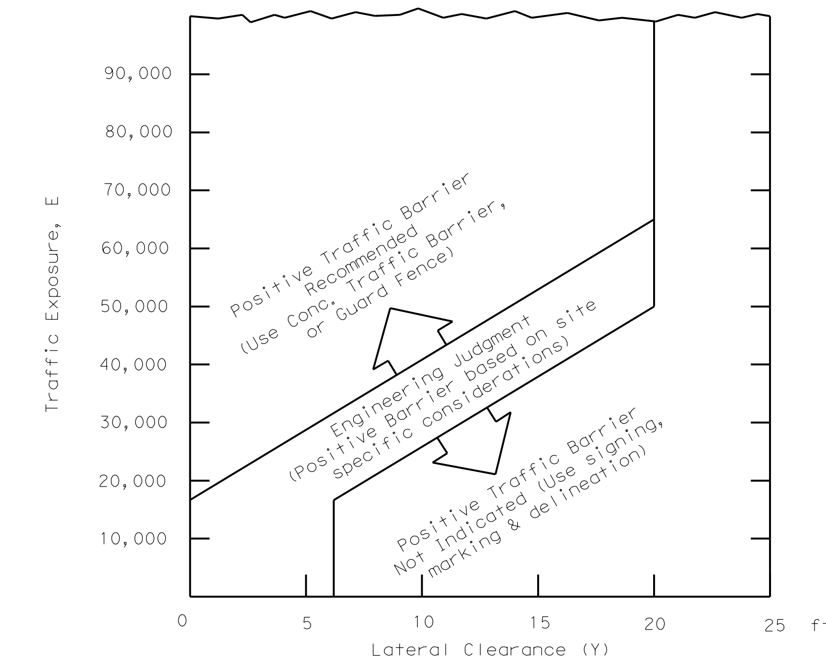
1. The "Edge Condition" is the slope (S) of the drop-off (H:V). The "Edge Height is the depth of the drop-off "D".
2. Distance "X" is to be the maximum practical under job conditions. Two feet minimum for high speed conditions. Distance "Y" is the lateral clearance from edge of travel lane to edge of dropoff. Distance "Z" does not have a minimum.
3. In addition to the factors considered in the guidelines, each construction zone drop-off situation should be analyzed individually, taking into account other variables, such as: traffic mix, posted speed in the construction zone, horizontal curvature, and the practicality of the treatment options.
4. The conditions for indicating the use of positive or protective barriers are given by Zone-5 and Figure-1. Traffic barriers are primarily applicable for high speed conditions. Urban areas with speeds of 30 mph or less may have a lesser need for signing, delineation, and barriers. Right-angled edges, however, with "D" greater than 2 inches and located within a lateral offset of 6 feet, may indicate a higher level of treatment.
5. If the distance "Y" must be less than 3 feet, the use of a positive barrier may not be feasible. In such a case, consider either: 1) narrowing the lanes to a desired 11 to 12 feet or 10 foot minimum (see CW20-8 sign), or 2) provide an edge slope such as Edge Condition I.

Zone	Treatment Types Guidelines:
①	No treatment
②	CW 8-11 "Uneven Lanes" signs.
③	CW 8-9a Shoulder Drop-Off" or CW 8-11 signs plus vertical panels.
④	CW8-9a or CW 8-11, signs plus drums. Where restricted space precludes the use of drums, use vertical panels. An edge slope to that of the profered Edge Condition I.
⑤	Check indications (Figure-1) for possitive barrier. Where positive barrier is not indicated, the treatment shown above for Zone-4 may be used after consideration of other applicable factors.

Edge Condition Notes:

1. Edge Condition I: Most vehicles are able to traverse an edge condition with a slope rate of (3 to 1) or flatter. The slope must be constructed with a compacted material capable of supporting vehicles.
2. Edge Condition II: Most vehicles are able to traverse an edge condition with a slope between (2.99 to 1) and (1 to 1) so long as "D" does not exceed 5 inches. Under-carriage drag on most automobiles will occur when "D" exceeds 6 inches. As "D" exeeds 24 inches, the possibility for rollover is greater in most vehicles.
3. Edge Condition III: When slopes are greater than (1 to 1) and where "D" is greater than 2 inches, a more difficult control factor may exist for some vehicles, if not properly treated. For example, where "D" is greater than 2 inches and up to 24 inches different types of vehicles may experience different steering control at different edge heights. Automobiles might experience more steering control differential when "D" is greater than 2 inches and up to 5 inches. Trucks, particularly those with high loads, have more steering control differential when "D" is greater than 5 inches and up to 24 inches. When "D" exceeds 24 inches, the possibility of rollover is greater for most vehicles.
4. Milling or overlay operations that result in Edge Condition III should not be in place without appropriate warning treatments, and these conditions should not be left in place for extended periods of time.

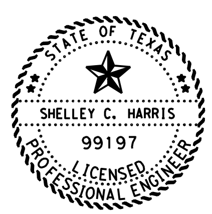
FIGURE-1: CONDITIONS INDICATING USE OF POSITIVE BARRIER FOR ZONE 5 (▩)

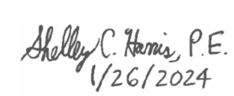


1. E = ADT x T
   Where ADT is that portion of the average daily traffic volume traveling within 20 feet (generally two adjacent lanes) of the edge dropoff condition; and, T is the duration time in years of the dropoff condition.
2. Figure-1 provides a practical approach to the use of positive barriers for the protection of vehicles from pavement drop-offs. Other factors, such as the presence of heavy machinery, construction workers, or the mix and volume of traffic may make the use of positive barriers appropriate, even when the edge condition alone may not justify the use of a barrier.
3. An approved end treatment should be provided for any positive barrier end located within the clear zone.

These guidelines apply to temporary traffic control areas or work zones where continuous pavement edges or drop-offs exists parallel and adjacent to a lane used by traffic. The edge conditions may be present between shoulders and travel lanes, between adjacent or opposing travel lanes, or at intermediate points across the width of the paved surface. Due to the variability in construction operations, tolerances in the variables may be allowed by the engineer. These guidelines do not apply to short term operations. These guidelines do not constitute a rigid standard or policy; rather, they are guidance to be used in conjunction with engineering judgement. These guidelines may be updated on the Design Division's on-line manuals.

Engineer's Seal





Texas Department of Transportation

Traffic Safety Division Standard

TREATMENT FOR VARIOUS EDGE CONDITIONS

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©TxDOT August 2000	CONT	SECT	JOB	HIGHWAY
REVISIONS 03-01 08-01 9-21	0053	01	136	US 84, ETC.
	DIST		COUNTY	SHEET NO.
	LBB		LUBBOCK, ETC.	28

DATE: 1/30/2024 2:25:45 PM
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REMOVAL ITEMS											
					0106-6001	0104-6009	0543-6021	0543-6022	0644-6076	0658-6060	0677-6003
STATION	STATION	LENGTH	SIDE OF ROADWAY	INFORMATION	OBLITERATING ABANDONED ROAD	REMOVING CONC (RIPRAP)	REMOVE CABLE BARRIER	REMOVE CABLE BARRIER TERMINAL SECTION	REMOVE SM RD SN SUP&AM	REMOVE DELIN & OBJECT MARKER ASSMS	ELIM EXT PAV MRK & MRKS (8")
TO	TO	LF	RT/LT/BOTH		STA	SY	LF	EA	EA	EA	LF
CSJ: 0053-04-045											
1964+92.80	1972+62.98			REMOVE CROSSOVER & DECEL LANES	7.70				2	2	280
1985+00.00	1989+15.91			REMOVE CROSSOVER & DECEL LANE	4.16				3	1	140
				0053-04-045 Totals:	11.86				5	3	420
CSJ: 0053-05-053											
165+48.90	206+63.80	4060	RT	REMOVE MEDIAN CABLE BARRIER (SITE 1)		1353.33	4060.00	2		2	
613+76.70	652+51.70	3820	RT	REMOVE MEDIAN CABLE BARRIER (SITE 2)		1273.33	3820.00	2		2	
				0053-05-053 Totals:		2626.66	7880.00	4		4	
CSJ: 0053-06-032											
816+24.73	817+51.83			REMOVE CROSSOVER	1.27				5	1	275
				0053-06-032 Totals:	1.27				5	1	275
				Project Total:	13.13	2626.66	7880.00	4	10	8	695

RELOCATE ITEMS	
CSJ	644 6068 RELOCATE SM RD SN SUP&AM TY 10BWG EA
0053-01-136	
0053-03-022	7
0053-04-045	53
0053-05-053	15
0053-06-032	7
0068-03-034	42
0068-02-049	2
PROJECT TOTALS	126

Notes:

1. Details are shown for estimating purposes only, and field conditions may vary. Item 106 will serve as full compensation for removal of any and all roadway material as determined by the Engineer.

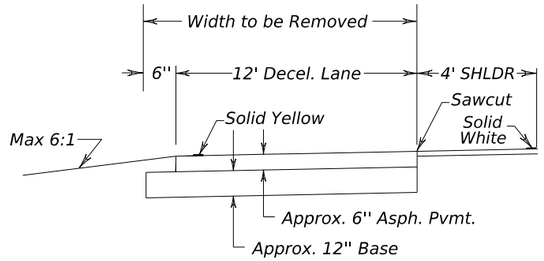
2. The contractor will be responsible for any surveying of median ditch(es) to ensure existing drainage is maintained.

Sequence of Work for Obliterating Abandoned Road:

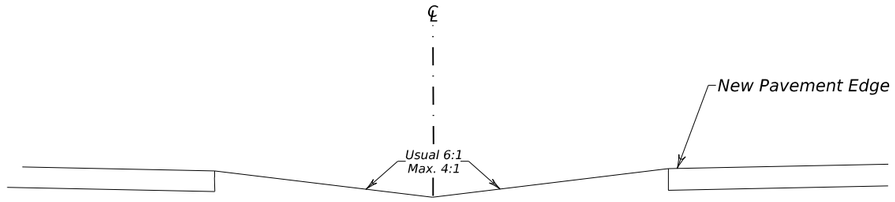
1. Remove crossovers, including signs, pavement markings and other debris.

2. Bring in engineer approved embankment.

3. Shape to drain as directed.



EXISTING MEDIAN D-LANE DETAIL



REGRADED DITCH DETAIL

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

REMOVAL SUMMARY & DETAILS

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		29

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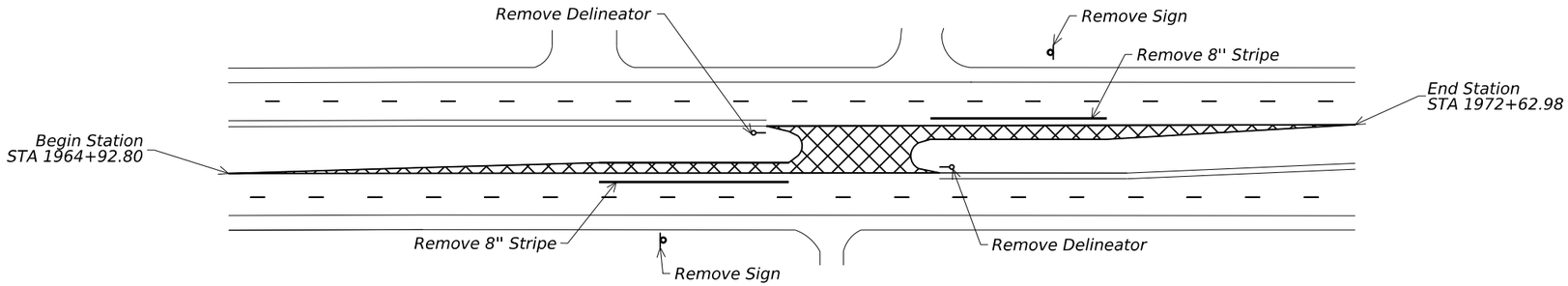
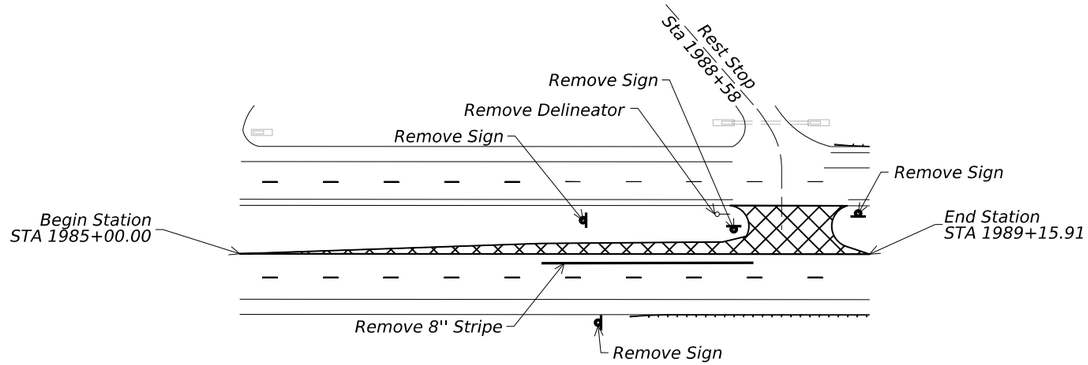
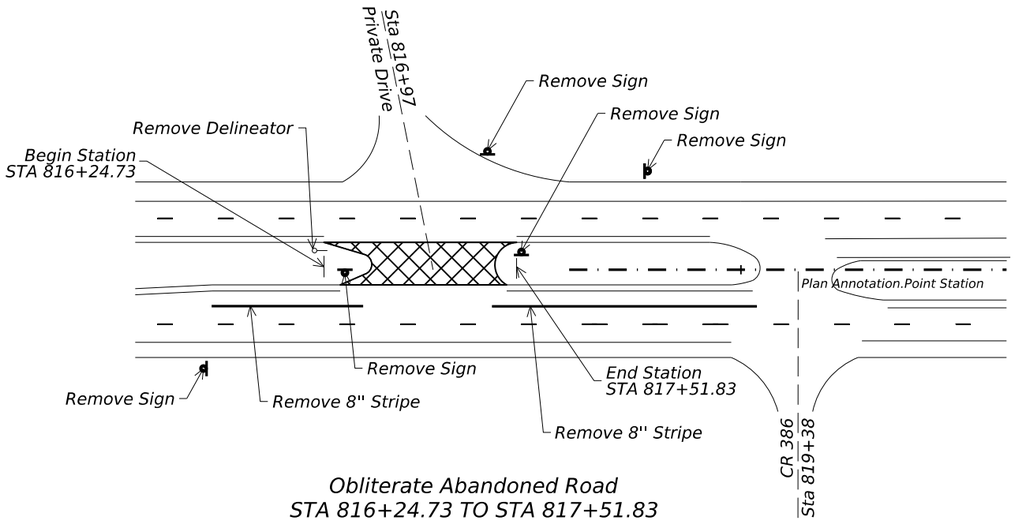


Area to be Obliterated

Obliterate Abandoned Road with Decel Lanes
STA 1964+92.80 TO STA 1972+62.98



Obliterate Abandoned Road with Decel Lane
STA 1985+00.00 TO STA 1989+15.91



Obliterate Abandoned Road
STA 816+24.73 TO STA 817+51.83

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

REMOVAL SUMMARY & DETAILS

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		30

DATE: 1/30/2024 3:25:37 PM
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Horizontal Alignment Review Report

Project:	Default
Description:	US 84 & 87 Median Cable Barrier
Alignment Name:	BL North 84
Alignment Description:	
Alignment Style:	Alignment\Baseline

		Station	Northing	Easting
Element: Linear				
POT	( )	725+00.000 R1	7226150.359	1002942.792
PI	( )	740+00.000 R1	7224650.468	1002924.742
Tangential Direction:		S00°		
Tangential Length:		1500		
Element: Linear				
PI	( )	740+00.000 R1	7224650.468	1002924.742
PI	( )	745+00.000 R1	7224150.484	1002920.705
Tangential Direction:		S00°		
Tangential Length:		500		
Element: Linear				
PI	( )	745+00.000 R1	7224150.484	1002920.705
PI	( )	754+00.000 R1	7223250.559	1002909.063
Tangential Direction:		S00°		
Tangential Length:		900		
Element: Linear				
PI	( )	754+00.000 R1	7223250.559	1002909.063
PI	( )	755+00.000 R1	7223150.568	1002907.769
Tangential Direction:		S00°		
Tangential Length:		100		
Element: Linear				
PI	( )	755+00.000 R1	7223150.568	1002907.769
PI	( )	770+00.000 R1	7221650.693	1002888.366
Tangential Direction:		S00°		
Tangential Length:		1500		
Element: Linear				
PI	( )	770+00.000 R1	7221650.693	1002888.366
PC	( )	777+21.400 R1	7220929.343	1002879.866
Tangential Direction:		S00°		
Tangential Length:		721.4		
Element: Circular				
PC	( )	777+21.400 R1	7220929.343	1002879.866
PI	( )	784+27.049 R1	7220223.707	1002884.087
CC	( )		7220946.479	1005744.535
PT	( )	791+05.151 R1	7219600.762	1003215.57
Radius:		2864.72		
Delta:		27°40'32.469"	Left	
Degree of Curvature (Arc):		02°00'00.173"		
Length:		1383.751		
Tangent:		705.649		
Chord:		1370.338		
Middle Ordinate:		83.144		
External:		85.629		
Back Tangent Direction:		S00°20'33.821"E		
Back Radial Direction:		S89°		
Chord Direction:		S14°10'50.055"E		
Ahead Radial Direction:		S61°58'53.710"W		
Ahead Tangent Direction:		S28°01'06.290"E		
Element: Linear				
PT	( )	791+05.151 R1	7219600.762	1003215.57
PI	( )	796+05.151 R1	7219155.017	1003442.09
Tangential Direction:		S26°56'20.187"E		
Tangential Length:		500		
Element: Linear				
PI	( )	796+05.151 R1	7219155.017	1003442.09
PI	( )	798+31.048 R1	7218952.696	1003542.569
Tangential Direction:		S26°24'37.997"E		
Tangential Length:		225.897		
Element: Linear				
PI	( )	798+31.048 R1	7218952.696	1003542.569
PC	( )	799+88.048 R1	7218812.083	1003612.403
Tangential Direction:		S26°24'37.997"E		
Tangential Length:		157		
Element: Circular				
PC	( )	799+88.048 R1	7218812.083	1003612.403
PI	( )	806+82.864 R1	7218182.883	1003907.152
CC	( )		7220061.857	1006280.287
PT	( )	813+52.743 R1	7217751.693	1004451.986
Radius:		2946.106		
Delta:		26°32'25.901"	Left	
Degree of Curvature (Arc):		01°56'41.268"		
Length:		1364.694		
Tangent:		694.816		
Chord:		1352.526		
Middle Ordinate:		78.667		
External:		80.825		
Back Tangent Direction:		S25°06'02.912"E		
Back Radial Direction:		S64°		
Chord Direction:		S38°22'15.862"E		
Ahead Radial Direction:		S38°		
Ahead Tangent Direction:		S51°38'28.813"E		
Element: Linear				
PT	( )	813+52.743 R1	7217751.693	1004451.986
PI	( )	828+42.443 R1	7216876.204	1005657.276
Tangential Direction:		S54°00'23.000"E		
Tangential Length:		1489.7		
Element: Linear				
PI	( )	828+42.443 R1	7216876.204	1005657.276
PI	( )	843+42.443 R1	7215991.932	1006868.913
Tangential Direction:		S53°52'38.719"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	843+42.443 R1	7215991.932	1006868.913
PI	( )	858+42.443 R1	7215107.659	1008080.549
Tangential Direction:		S53°52'38.719"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	858+42.443 R1	7215107.659	1008080.549
PI	( )	873+42.443 R1	7214226.371	1009294.358
Tangential Direction:		S54°01'06.260"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	873+42.443 R1	7214226.371	1009294.358
PI	( )	888+42.443 R1	7213337.57	1010502.675
Tangential Direction:		S53°39'46.518"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	888+42.443 R1	7213337.57	1010502.675
PI	( )	893+38.900 R1	7213053.457	1010909.799
Tangential Direction:		S55°05'26.320"E		
Tangential Length:		496.457		
Element: Linear				
PI	( )	893+38.900 R1	7213053.457	1010909.799
PI	( )	902+53.860 R1	7212521.325	1011654.102
Tangential Direction:		S54°26'14.995"E		
Tangential Length:		914.96		
Element: Linear				
PI	( )	902+53.860 R1	7212521.325	1011654.102
PC	( )	911+99.460 R1	7211942.075	1012401.517
Tangential Direction:		S52°13'26.814"E		
Tangential Length:		945.6		
Element: Circular				
PC	( )	911+99.460 R1	7211942.075	1012401.517
PI	( )	918+02.731 R1	7211572.229	1012878.12
CC	( )		7102701.103	927630.089
PT	( )	924+05.994 R1	7211198.239	1013351.477
Radius:		138274.31		
Delta:		00°29'59.796"	Right	
Degree of Curvature (Arc):		00°02'29.171"		
Length:		1206.534		
Tangent:		603.271		
Chord:		1206.53		
Middle Ordinate:		1.316		
External:		1.316		
Back Tangent Direction:		S52°11'18.222"E		
Back Radial Direction:		S37°		
Chord Direction:		S51°56'18.324"E		
Ahead Radial Direction:		S38°		
Ahead Tangent Direction:		S51°41'18.426"E		
Element: Linear				
PT	( )	924+05.994 R1	7211198.239	1013351.477
PI	( )	932+53.694 R1	7210637.505	1013987.223
Tangential Direction:		S48°35'14.566"E		
Tangential Length:		847.7		
Element: Linear				
PI	( )	932+53.694 R1	7210637.505	1013987.223
PI	( )	947+53.694 R1	7209633.686	1015101.829
Tangential Direction:		S47°59'37.217"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	947+53.694 R1	7209633.686	1015101.829
PI	( )	949+53.694 R1	7209496.708	1015247.558
Tangential Direction:		S46°46'23.074"E		
Tangential Length:		200		
Element: Linear				
PI	( )	949+53.694 R1	7209496.708	1015247.558
PI	( )	964+53.694 R1	7208492.131	1016361.481
Tangential Direction:		S47°57'16.836"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	964+53.694 R1	7208492.131	1016361.481
PI	( )	979+53.694 R1	7207479.739	1017468.307
Tangential Direction:		S47°33'05.270"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	979+53.694 R1	7207479.739	1017468.307
PI	( )	994+53.694 R1	7206473.618	1018580.836
Tangential Direction:		S47°52'30.751"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	994+53.694 R1	7206473.618	1018580.836
PI	( )	1009+53.694 R1	7205471.563	1019697.029
Tangential Direction:		S48°05'03.567"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	1009+53.694 R1	7205471.563	1019697.029
PI	( )	1024+53.694 R1	7204465.949	1020810.016
Tangential Direction:		S47°54'04.751"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	1024+53.694 R1	7204465.949	1020810.016
PI	( )	1039+53.694 R1	7203463.087	1021925.483
Tangential Direction:		S48°02'34.201"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	1039+53.694 R1	7203463.087	1021925.483
PI	( )	1050+65.538 R1	7202715.202	1022748.201
Tangential Direction:		S47°43'40.368"E		
Tangential Length:		1111.844		
Element: Linear				
PI	( )	1050+65.538 R1	7202715.202	1022748.201
PI	( )	1063+10.538 R1	7201880.269	1023671.733
Tangential Direction:		S47°53'03.670"E		
Tangential Length:		1245		
Element: Linear				
PI	( )	1063+10.538 R1	7201880.269	1023671.733
PI	( )	1078+10.538 R1	7200874.325	1024784.422
Tangential Direction:		S47°53'03.670"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	1078+10.538 R1	7200874.325	1024784.422
PI	( )	1093+10.538 R1	7199870.884	1025899.369
Tangential Direction:		S48°00'47.182"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	1093+10.538 R1	7199870.884	1025899.369
PI	( )	1108+10.538 R1	7198865.139	1027012.238
Tangential Direction:		S47°53'40.475"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	1108+10.538 R1	7198865.139	1027012.238
PI	( )	1123+10.538 R1	7197859.393	1028125.106
Tangential Direction:		S47°53'40.475"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	1123+10.538 R1	7197859.393	1028125.106
PI	( )	1138+10.538 R1	7196853.648	1029237.975
Tangential Direction:		S47°53'40.475"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	1138+10.538 R1	7196853.648	1029237.975
PI	( )	1154+60.538 R1	7195751.414	1030465.81
Tangential Direction:		S48°05'07.787"E		
Tangential Length:		1650		
Element: Linear				
PI	( )	1154+60.538 R1	7195751.414	1030465.81
PI	( )	1169+60.538 R1	7194741.673	1031575.054
Tangential Direction:		S47°41'18.663"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	1169+60.538 R1	7194741.673	1031575.054
PI	( )	1184+60.538 R1	7193737.191	1032689.064
Tangential Direction:		S47°57'34.677"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	1184+60.538 R1	7193737.191	1032689.064
PI	( )	1199+60.538 R1	7192732.71	1033803.074
Tangential Direction:		S47°57'34.677"E		
Tangential Length:		1500		
Element: Linear				
PI	( )	1199+60.538 R1	7192732.71	1033803.074
PC	( )	1211+50.858 R1	7191933.433	1034685.126
Tangential Direction:		S47°49'06.563"E		
Tangential Length:		1190.32		
Element: Circular				
PC	( )	1211+50.858 R1	7191933.433	1034685.126
PI	( )	1212+85.537 R1	7191843.301	1034785.2
CC	( )		7189804.789	1032767.968
PT	( )	1214+20.018 R1	7191744.179	1034876.377
Radius:		2864.72		
Delta:		05°22'59.987"	Right	
Degree of Curvature (Arc):		02°00'00.173"		
Length:		269.16		
Tangent:		134.679		
Chord:		269.061		
Middle Ordinate:		3.161		
External:		3.164		
Back Tangent Direction:		S47°59'32.197"E		
Back Radial Direction:		S42°		
Chord Direction:		S45°18'02.204"E		
Ahead Radial Direction:		S47°		
Ahead Tangent Direction:		S42°36'32.210"E		
Element: Linear				
PT	( )	1214+20.018 R1	7191744.179	1034876.377
PI	( )	1214+60.538 R1	7191714.387	1034903.842
Tangential Direction:		S42°40'21.608"E		
Tangential Length:		40.52		
Element: Linear				
PI	( )	1214+60.538 R1	7191714.387	1034903.842
PC	( )	1220+62.318 R1	7191272.912	1035312.791
Tangential Direction:		S42°48'35.068"E		
Tangential Length:		601.78		
Element: Circular				
PC	( )	1220+62.318 R1	7191272.912	1035312.791
PI	( )	1223+41.677 R1	7191068.424	1035503.122
CC	( )		7189321.139	1033215.84
PT	( )	1226+19.275 R1	7190831.016	1035650.361

Alignment data for contractor information only. Data taken from as builts: 0053-04-033 and 0053-04-021 and Google Earth image.

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

ROADWAY ALIGNMENT DATA (US 84 NORTH) NO SCALE

SHEET 1 OF 6

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		31

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CK DW CK DW

Radius:	2864.72		
Delta:	11°08'21.907"	Right	
Degree of Curvature (Arc):	02°00'00.173"		
Length:	556.958		
Tangent:	279.359		
Chord:	556.081		
Middle Ordinate:	13.525		
External:	13.589		
Back Tangent Direction:	S42°56'47.039"E		
Back Radial Direction:	S47°		
Chord Direction:	S37°22'36.085"E		
Ahead Radial Direction:	S58°		
Ahead Tangent Direction:	S31°48'25.132"E		
Element: Linear			
PT	( )	1226+19.275 R1	7190831.016	1035650.361
PI	( )	1227+31.735 R1	7190734.834	1035708.637
Tangential Direction:	S31°12'41.198"E		
Tangential Length:	112.459		
Element: Linear			
PI	( )	1227+31.735 R1	7190734.834	1035708.637
PI	( )	1242+40.785 R1	7189446.819	1036494.925
Tangential Direction:	S31°24'09.360"E		
Tangential Length:	1509.05		
Element: Linear			
PI	( )	1242+40.785 R1	7189446.819	1036494.925
PC	( )	1245+38.565 R1	7189190.387	1036646.305
Tangential Direction:	S30°33'16.708"E		
Tangential Length:	297.78		
Element: Circular			
PC	( )	1245+38.565 R1	7189190.387	1036646.305
PI	( )	1248+33.826 R1	7188940.697	1036803.891
CC	( )		7192248.376	1041491.59
PT	( )	1251+28.565 R1	7188708.527	1036986.309
Radius:	5729.58		
Delta:	05°53'59.992"	Left	
Degree of Curvature (Arc):	00°59'59.999"		
Length:	590		
Tangent:	295.261		
Chord:	589.739		
Middle Ordinate:	7.593		
External:	7.603		
Back Tangent Direction:	S32°15'25.600"E		
Back Radial Direction:	S57°		
Chord Direction:	S35°12'25.596"E		
Ahead Radial Direction:	S51°50'34.408"W		
Ahead Tangent Direction:	S38°09'25.592"E		
Element: Linear			
PT	( )	1251+28.565 R1	7188708.527	1036986.309
PC	( )	1251+30.045 R1	7188707.336	1036987.188
Tangential Direction:	S36°25'59.631"E		
Tangential Length:	1.48		
Element: Circular			
PC	( )	1251+30.045 R1	7188707.336	1036987.188
PI	( )	1254+25.306 R1	7188470.896	1037164.035
CC	( )		7185275.595	1032399.025
PT	( )	1257+20.045 R1	7188217.529	1037315.641
Radius:	5729.58		
Delta:	05°53'59.992"	Right	
Degree of Curvature (Arc):	00°59'59.999"		
Length:	590		
Tangent:	295.261		
Chord:	589.739		
Middle Ordinate:	7.593		
External:	7.603		
Back Tangent Direction:	S36°47'41.456"E		
Back Radial Direction:	S53°		
Chord Direction:	S33°50'41.460"E		
Ahead Radial Direction:	S59°		
Ahead Tangent Direction:	S30°53'41.463"E		
Element: Linear			
PT	( )	1257+20.045 R1	7188217.529	1037315.641
PI	( )	1268+40.785 R1	7187261.239	1037900.079
Tangential Direction:	S31°25'52.365"E		
Tangential Length:	1120.74		
Element: Linear			
PI	( )	1268+40.785 R1	7187261.239	1037900.079
PI	( )	1294+40.785 R1	7185040.26	1039251.839
Tangential Direction:	S31°19'33.828"E		
Tangential Length:	2600		
Element: Linear			
PI	( )	1294+40.785 R1	7185040.26	1039251.839
PI	( )	1320+40.785 R1	7182820.403	1040605.438
Tangential Direction:	S31°22'24.678"E		
Tangential Length:	2600		
Element: Linear			
PI	( )	1320+40.785 R1	7182820.403	1040605.438
PI	( )	1346+40.785 R1	7180599.817	1041957.843
Tangential Direction:	S31°20'33.682"E		
Tangential Length:	2600		
Element: Linear			
PI	( )	1346+40.785 R1	7180599.817	1041957.843
PI	( )	1372+40.785 R1	7178379.231	1043310.247
Tangential Direction:	S31°20'33.682"E		
Tangential Length:	2600		

Element: Linear			
PI	( )	1372+40.785 R1	7178379.231	1043310.247
PI	( )	1398+40.785 R1	7176159.678	1044664.346
Tangential Direction:	S31°23'11.101"E		
Tangential Length:	2600		
Element: Linear			
PI	( )	1398+40.785 R1	7176159.678	1044664.346
PI	( )	1424+40.785 R1	7173940.124	1046018.445
Tangential Direction:	S31°23'11.101"E		
Tangential Length:	2600		
Element: Linear			
PI	( )	1424+40.785 R1	7173940.124	1046018.445
PI	( )	1450+40.785 R1	7171719.587	1047370.929
Tangential Direction:	S31°20'41.108"E		
Tangential Length:	2600		
Element: Linear			
PI	( )	1450+40.785 R1	7171719.587	1047370.929
PI	( )	1476+40.785 R1	7169497.729	1048721.243
Tangential Direction:	S31°17'19.550"E		
Tangential Length:	2600		
Element: Linear			
PI	( )	1476+40.785 R1	7169497.729	1048721.243
PI	( )	1502+40.785 R1	7167278.476	1050075.834
Tangential Direction:	S31°23'56.764"E		
Tangential Length:	2600		
Element: Linear			
PI	( )	1502+40.785 R1	7167278.476	1050075.834
PI	( )	1528+40.785 R1	7165059.223	1051430.424
Tangential Direction:	S31°23'56.764"E		
Tangential Length:	2600		
Element: Linear			
PI	( )	1528+40.785 R1	7165059.223	1051430.424
PI	( )	1554+40.785 R1	7162839.969	1052785.014
Tangential Direction:	S31°23'56.764"E		
Tangential Length:	2600		
Element: Linear			
PI	( )	1554+40.785 R1	7162839.969	1052785.014
PI	( )	1580+40.785 R1	7160620.716	1054139.604
Tangential Direction:	S31°23'56.764"E		
Tangential Length:	2600		
Element: Linear			
PI	( )	1580+40.785 R1	7160620.716	1054139.604
PC	( )	1590+35.035 R1	7159772.065	1054657.605
Tangential Direction:	S31°23'56.764"E		
Tangential Length:	994.25		
Element: Circular			
PC	( )	1590+35.035 R1	7159772.065	1054657.605
PI	( )	1594+66.683 R1	7159407.135	1054888.14
CC	( )		7162832.126	1059501.582
PT	( )	1598+96.705 R1	7159080.863	1055170.749
Radius:	5729.58		
Delta:	08°37'00.109"	Left	
Degree of Curvature (Arc):	00°59'59.999"		
Length:	861.67		
Tangent:	431.649		
Chord:	860.858		
Middle Ordinate:	16.191		
External:	16.237		
Back Tangent Direction:	S32°16'53.831"E		
Back Radial Direction:	S57°		
Chord Direction:	S36°35'23.885"E		
Ahead Radial Direction:	S49°		
Ahead Tangent Direction:	S40°53'53.940"E		
Element: Linear			
PT	( )	1598+96.705 R1	7159080.863	1055170.749
PI	( )	1606+92.535 R1	7158470.491	1055681.426
Tangential Direction:	S39°55'05.119"E		
Tangential Length:	795.83		
Element: Linear			
PI	( )	1606+92.535 R1	7158470.491	1055681.426
PI	( )	1644+28.858 R1	7155605.859	1058080.175
Tangential Direction:	S39°56'30.098"E		
Tangential Length:	3736.324		
Element: Linear			
PI	( )	1644+28.858 R1	7155605.859	1058080.175
PI	( )	1697+69.055 R1	7151515.211	1061513.002
Tangential Direction:	S40°00'10.831"E		
Tangential Length:	5340.196		
Element: Linear			
PI	( )	1697+69.055 R1	7151515.211	1061513.002
PC	( )	1730+92.047 R1	7148968.123	1063647.157
Tangential Direction:	S39°57'32.296"E		
Tangential Length:	3322.992		
Element: Circular			
PC	( )	1730+92.047 R1	7148968.123	1063647.157
PI	( )	1732+35.412 R1	7148857.197	1063737.981
CC	( )		7152597.902	1068080.304
PT	( )	1733+78.717 R1	7148750.952	1063834.239
Radius:	5729.58		
Delta:	02°52'00.116"	Left	
Degree of Curvature (Arc):	00°59'59.999"		
Length:	286.67		
Tangent:	143.365		
Chord:	286.64		
Middle Ordinate:	1.793		

External:	1.793		
Back Tangent Direction:	S39°18'35.962"E		
Back Radial Direction:	S50°		
Chord Direction:	S40°44'36.020"E		
Ahead Radial Direction:	S47°		
Ahead Tangent Direction:	S42°10'36.079"E		
Element: Linear			
PT	( )	1733+78.717 R1	7148750.952	1063834.239
PC	( )	1742+95.847 R1	7148076.692	1064455.93
Tangential Direction:	S42°40'37.713"E		
Tangential Length:	917.13		
Element: Circular			
PC	( )	1742+95.847 R1	7148076.692	1064455.93
PI	( )	1747+46.774 R1	7147753.226	1064770.104
CC	( )		7144084.732	1060345.901
PT	( )	1751+95.847 R1	7147384.594	1065029.809
Radius:	5729.58		
Delta:	08°59'59.988"	Right	
Degree of Curvature (Arc):	00°59'59.999"		
Length:	900		
Tangent:	450.928		
Chord:	899.075		
Middle Ordinate:	17.662		
External:	17.717		
Back Tangent Direction:	S44°09'54.321"E		
Back Radial Direction:	S45°		
Chord Direction:	S39°39'54.327"E		
Ahead Radial Direction:	S54°		
Ahead Tangent Direction:	S35°09'54.333"E		
Element: Linear			
PT	( )	1751+95.847 R1	7147384.594	1065029.809
PC	( )	1761+12.977 R1	7146622.958	1065540.726
Tangential Direction:	S33°51'15.489"E		
Tangential Length:	917.13		
Element: Circular			
PC	( )	1761+12.977 R1	7146622.958	1065540.726
PI	( )	1764+05.673 R1	7146385.25	1065711.508
CC	( )		7153792.797	1075520.305
PT	( )	1766+98.258 R1	7146155.943	1065893.413
Radius:	12288.148		
Delta:	02°43'44.344"	Left	
Degree of Curvature (Arc):	00°27'58.567"		
Length:	585.282		
Tangent:	292.696		
Chord:	585.226		
Middle Ordinate:	3.484		
External:	3.485		
Back Tangent Direction:	S35°41'43.431"E		
Back Radial Direction:	S54°		
Chord Direction:	S37°03'35.603"E		
Ahead Radial Direction:	S51°34'32.225"W		
Ahead Tangent Direction:	S38°25'27.775"E		
Element: Linear			
PT	( )	1766+98.258 R1	7146155.943	1065893.413
PC	( )	1769+61.235 R1	7145946.895	1066052.96
Tangential Direction:	S37°21'04.271"E		
Tangential Length:	262.977		
Element: Circular			
PC	( )	1769+61.235 R1	7145946.895	1066052.96
PI	( )	1771+36.290 R1	7145808.183	1066159.747
CC	( )		7142451.728	1061512.887
PT	( )	1773+11.237 R1	7145663.211	1066257.867
Radius:	5729.612		
Delta:	03°29'59.995"	Right	
Degree of Curvature (Arc):	00°59'59.978"		
Length:	350.002		
Tangent:	175.055		
Chord:	349.948		
Middle Ordinate:	2.672		
External:	2.674		
Back Tangent Direction:	S37°35'26.899"E		
Back Radial Direction:	S52°		
Chord Direction:	S35°50'26.902"E		
Ahead Radial Direction:	S55°		
Ahead Tangent Direction:	S34°05'26.904"E		
Element: Linear			
PT	( )	1773+11.237 R1	7145663.211	1066257.867
PI	( )	1790+36.718 R1	7144230.346	1067219.21
Tangential Direction:	S33°51'30.915"E		
Tangential Length:	1725.481		
Element: Linear			
PI	( )	1790+36.718 R1	7144230.346	1067219.21
PI	( )	1816+36.718 R1	7142069.189	1068664.686
Tangential Direction:	S33°46'34.792"E		
Tangential Length:	2600		
Element: Linear			
PI	( )	1816+36.718 R1	7142069.189	1068664.686
PC	( )	1842+36.718 R1	7139910.878	1070114.408
Tangential Direction:	S33°53'20.280"E		
Tangential Length:	2600		
Element: Circular			
PC	( )	1842+36.718 R1	7139910.878	1070114.408
PI	( )	1856+98.942 R1	7138695.642	1070927.613
CC	( )		7143097.343	1074876.185

Alignment data for contractor information only. Data taken from as builts: 0053-04-033 and 0053-04-021 and Google Earth image.

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

ROADWAY ALIGNMENT DATA (US 84 NORTH) NO SCALE

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		32

DATE: 1/30/2024 12:32:27 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/ROADWAY_ALIGNMENT_DATA.dgn

CK DW CK DW

PT	( )	1871+00.048 R1	7138018.714	1072223.711
Radius:		5729.58		
Delta:		28°37'59.843"	Left	
Degree of Curvature (Arc):		00°59'59.999"		
Length:		2863.33		
Tangent:		1462.224		
Chord:		2833.627		
Middle Ordinate:		177.938		
External:		183.641		
Back Tangent Direction:		S33°47'22.100"E		
Back Radial Direction:		S56°		
Chord Direction:		S48°06'22.021"E		
Ahead Radial Direction:		S27°		
Ahead Tangent Direction:		S62°25'21.943"E		
Element: Linear				
PT	( )	1871+00.048 R1	7138018.714	1072223.711
PC	( )	1873+73.748 R1	7137890.56	1072465.554
Tangential Direction:		S62°04'50.198"E		
Tangential Length:		273.7		
Element: Circular				
PC	( )	1873+73.748 R1	7137890.56	1072465.554
PI	( )	1881+70.489 R1	7137520.308	1073171.04
CC	( )		7142963.897	1075128.137
PT	( )	1889+57.078 R1	7137356.587	1073950.779
Radius:		5729.58		
Delta:		15°49'59.860"	Left	
Degree of Curvature (Arc):		00°59'59.999"		
Length:		1583.33		
Tangent:		796.742		
Chord:		1578.297		
Middle Ordinate:		54.606		
External:		55.131		
Back Tangent Direction:		S62°18'31.199"E		
Back Radial Direction:		S27°		
Chord Direction:		S70°13'31.129"E		
Ahead Radial Direction:		S11°51'28.942"W		
Ahead Tangent Direction:		S78°08'31.058"E		
Element: Linear				
PT	( )	1889+57.078 R1	7137356.587	1073950.779
PI	( )	1891+54.267 R1	7137317.167	1074143.988
Tangential Direction:		S78°28'05.600"E		
Tangential Length:		197.189		
Element: Linear				
PI	( )	1891+54.267 R1	7137317.167	1074143.988
PC	( )	1901+75.667 R1	7137109.653	1075144.086
Tangential Direction:		S78°16'40.203"E		
Tangential Length:		1021.4		
Element: Circular				
PC	( )	1901+75.667 R1	7137109.653	1075144.086
PI	( )	1908+03.157 R1	7136984.624	1075758.994
CC	( )		7131494.961	1074002.454
PT	( )	1914+25.667 R1	7136729.468	1076332.266
Radius:		5729.58		
Delta:		12°29'59.984"	Right	
Degree of Curvature (Arc):		00°59'59.999"		
Length:		1250		
Tangent:		627.491		
Chord:		1247.522		
Middle Ordinate:		34.055		
External:		34.258		
Back Tangent Direction:		S78°30'24.333"E		
Back Radial Direction:		S11°29'35.667"W		
Chord Direction:		S72°15'24.342"E		
Ahead Radial Direction:		S23°		
Ahead Tangent Direction:		S66°00'24.350"E		
Element: Linear				
PT	( )	1914+25.667 R1	7136729.468	1076332.266
PI	( )	1940+25.667 R1	7135659.153	1078701.744
Tangential Direction:		S65°41'27.134"E		
Tangential Length:		2600		
Element: Linear				
PI	( )	1940+25.667 R1	7135659.153	1078701.744
PI	( )	1966+25.667 R1	7134597.149	1081074.958
Tangential Direction:		S65°53'29.966"E		
Tangential Length:		2600		
Element: Linear				
PI	( )	1966+25.667 R1	7134597.149	1081074.958
PI	( )	1992+25.667 R1	7133527.734	1083444.843
Tangential Direction:		S65°42'45.496"E		
Tangential Length:		2600		
Element: Linear				
PI	( )	1992+25.667 R1	7133527.734	1083444.843
PI	( )	2018+25.642 R1	7132462.601	1085816.627
Tangential Direction:		S65°48'57.089"E		
Tangential Length:		2599.975		
Element: Linear				
PI	( )	2018+25.642 R1	7132462.603	1085816.623
PI	( )	2032+28.242 R1	7131883.308	1087094.004
Tangential Direction:		S65°36'20.195"E		
Tangential Length:		1402.6		
Element: Linear				
PI	( )	2032+28.242 R1	7131883.308	1087094.004
PI	( )	2035+25.642 R1	7131762.88	1087365.93
Tangential Direction:		S66°06'46.457"E		
Tangential Length:		297.4		
Element: Linear				
PI	( )	2035+25.642 R1	7131762.88	1087365.93
PC	( )	2035+60.242 R1	7131748.869	1087397.567
Tangential Direction:		S66°06'46.457"E		
Tangential Length:		34.6		
Element: Circular				
PC	( )	2035+60.242 R1	7131748.869	1087397.567
PI	( )	2044+61.025 R1	7131376.897	1088217.962
CC	( )		7130521.344	1086841
PT	( )	2051+48.377 R1	7130476.61	1088188.065
Radius:		1347.807		
Delta:		67°30'43.884"	Right	
Degree of Curvature (Arc):		04°15'03.733"		
Length:		1588.135		
Tangent:		900.783		
Chord:		1497.841		
Middle Ordinate:		227.226		
External:		273.302		
Back Tangent Direction:		S65°36'36.710"E		
Back Radial Direction:		S24°		
Chord Direction:		S31°51'14.768"E		
Ahead Radial Direction:		N88°		
Ahead Tangent Direction:		S01°54'07.174"W		
Element: Linear				
PT	( )	2051+48.377 R1	7130476.61	1088188.065
POT	( )	2073+66.577 R1	7128259.022	1088135.961
Tangential Direction:		S01°20'45.392"W		
Tangential Length:		2218.2		

Alignment data for contractor information only. Data taken from as builts: 0053-04-033 and 0053-04-021 and Google Earth image.

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1/26/2024

Texas Department of Transportation

US 84, ETC.

ROADWAY ALIGNMENT DATA (US 84 NORTH) NO SCALE

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		33

DATE: 1/30/2024 12:33:09 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011136/4 - Design/Plan Set/3. Roadway/ROADWAY ALIGNMENT DATA.dgn

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DATE: 1/30/2024 12:33:21 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011136/4 - Design/Plan Set/3. Roadway\ROADWAY ALIGNMENT DATA.dgn

Horizontal Alignment Report

Project:	Default			
Description:				
Alignment Name:		BL South 84		
Alignment Description:				
Alignment Style:		Alignment\Baseline		
		Station	Northing	Easting
Element: Linear				
POT	( )	60+00.000 R1	7123482.23	1090478.539
PC	( )	92+34.910 R1	7122175.198	1093437.646
Tangential Direction:		S66°		
Tangential Length:		3234.91		
Element: Circular				
PC	( )	92+34.910 R1	7122175.198	1093437.646
PI	( )	100+33.981 R1	7121847.781	1094166.558
CC	( )		7119561.937	1092263.809
PT	( )	107+93.440 R1	7121190.358	1094620.771
Radius:		2864.79		
Delta:		31°10'14.120"	Right	
Degree of Curvature (Arc):		01°59'59.997"		
Length:		1558.53		
Tangent:		799.071		
Chord:		1539.381		
Middle Ordinate:		105.334		
External:		109.355		
Back Tangent Direction:		S65°		
Back Radial Direction:		S24°		
Chord Direction:		S50°		
Ahead Radial Direction:		S55°		
Ahead Tangent Direction:		S34°		
Element: Linear				
PT	( )	107+93.440 R1	7121190.358	1094620.771
PI	( )	138+20.752 R1	7118713.747	1096361.752
Tangential Direction:		S35°		
Tangential Length:		3027.312		
Element: Linear				
PI	( )	138+20.752 R1	7118713.747	1096361.752
PC	( )	154+05.901 R1	7117416.094	1097272.134
Tangential Direction:		S35°		
Tangential Length:		1585.149		
Element: Circular				
PC	( )	154+05.901 R1	7117416.094	1097272.134
PI	( )	157+01.029 R1	7117173.574	1097440.313
CC	( )		7115783.589	1094918
PT	( )	159+94.081 R1	7116901.86	1097555.516
Radius:		2864.79		
Delta:		11°45'48.945"	Right	
Degree of Curvature (Arc):		01°59'59.997"		
Length:		588.18		
Tangent:		295.127		
Chord:		587.147		
Middle Ordinate:		15.082		
External:		15.162		
Back Tangent Direction:		S34°		
Back Radial Direction:		S55°		
Chord Direction:		S28°		
Ahead Radial Direction:		S67°		
Ahead Tangent Direction:		S22°		
Element: Linear				
PT	( )	159+94.081 R1	7116901.86	1097555.516
PI	( )	164+23.352 R1	7116507.671	1097725.482
Tangential Direction:		S23°		
Tangential Length:		429.271		
Element: Linear				
PI	( )	164+23.352 R1	7116507.671	1097725.482
PC	( )	181+28.322 R1	7114933.102	1098379.436
Tangential Direction:		S22°		
Tangential Length:		1704.97		
Element: Circular				
PC	( )	181+28.322 R1	7114933.102	1098379.436
PI	( )	190+44.968 R1	7114088.82	1098736.406
CC	( )		7116048.739	1101018.068
PT	( )	199+02.632 R1	7113608.582	1099517.182
Radius:		2864.79		
Delta:		35°29'10.274"	Left	
Degree of Curvature (Arc):		01°59'59.997"		
Length:		1774.31		
Tangent:		916.646		
Chord:		1746.087		
Middle Ordinate:		136.271		
External:		143.077		
Back Tangent Direction:		S22°		
Back Radial Direction:		S67°		
Chord Direction:		S40°		
Ahead Radial Direction:		S31°		
Ahead Tangent Direction:		S58°		
Element: Linear				
PT	( )	199+02.632 R1	7113608.582	1099517.182
PI	( )	215+82.812 R1	7112720.151	1100943.259
Tangential Direction:		S58°		
Tangential Length:		1680.18		
Element: Linear				
PI	( )	215+82.812 R1	7112720.151	1100943.259
PI	( )	241+82.812 R1	7111348.103	1103151.762
Tangential Direction:		S58°		
Tangential Length:		2600		
Element: Linear				
PI	( )	241+82.812 R1	7111348.103	1103151.762
PI	( )	267+82.809 R1	7109976.873	1105360.769
Tangential Direction:		S58°		
Tangential Length:		2599.997		
Element: Linear				
PI	( )	267+82.809 R1	7109976.873	1105360.769
PC	( )	290+63.109 R1	7108771.651	1107296.539
Tangential Direction:		S58°		
Tangential Length:		2280.3		
Element: Circular				
PC	( )	290+63.109 R1	7108771.651	1107296.539
PI	( )	292+67.911 R1	7108663.317	1107470.343
CC	( )		7103909.291	1104265.772
PT	( )	294+72.539 R1	7108542.85	1107635.968
Radius:		5729.58		
Delta:		04°05'39.475"	Right	
Degree of Curvature (Arc):		00°59'59.999"		
Length:		409.43		
Tangent:		204.802		
Chord:		409.343		
Middle Ordinate:		3.657		
External:		3.659		
Back Tangent Direction:		S58°		
Back Radial Direction:		S31°		
Chord Direction:		S56°		
Ahead Radial Direction:		S36°		
Ahead Tangent Direction:		S53°		
Element: Linear				
PT	( )	294+72.539 R1	7108542.85	1107635.968
PI	( )	319+81.507 R1	7107070.75	1109667.677
Tangential Direction:		S54°		
Tangential Length:		2508.968		
Element: Linear				
PI	( )	319+81.507 R1	7107070.75	1109667.677
PI	( )	345+81.507 R1	7105545.236	1111773.1
Tangential Direction:		S54°		
Tangential Length:		2600		
Element: Linear				
PI	( )	345+81.507 R1	7105545.236	1111773.1
PI	( )	371+81.507 R1	7104010.883	1113872.091
Tangential Direction:		S53°		
Tangential Length:		2600		
Element: Linear				
PI	( )	371+81.507 R1	7104010.883	1113872.091
PI	( )	397+81.507 R1	7102481.147	1115974.449
Tangential Direction:		S53°		
Tangential Length:		2600		
Element: Linear				
PI	( )	397+81.507 R1	7102481.147	1115974.449
PC	( )	411+44.217 R1	7101680.822	1117077.38
Tangential Direction:		S54°		
Tangential Length:		1362.71		
Element: Circular				
PC	( )	411+44.217 R1	7101680.822	1117077.38
PI	( )	417+91.596 R1	7101308.041	1117606.657
CC	( )		7096996.493	1113778.115
PT	( )	424+33.507 R1	7100826.562	1118039.413
Radius:		5729.58		
Delta:		12°53'34.423"	Right	
Degree of Curvature (Arc):		00°59'59.999"		
Length:		1289.29		
Tangent:		647.379		
Chord:		1286.572		
Middle Ordinate:		36.227		
External:		36.457		
Back Tangent Direction:		S54°		
Back Radial Direction:		S35°		
Chord Direction:		S48°		
Ahead Radial Direction:		S48°		
Ahead Tangent Direction:		S41°		
Element: Linear				
PT	( )	424+33.507 R1	7100826.562	1118039.413
PC	( )	461+01.982 R1	7098064.203	1120453.348
Tangential Direction:		S41°		
Tangential Length:		3668.476		
Element: Circular				
PC	( )	461+01.982 R1	7098064.203	1120453.348
PI	( )	465+18.046 R1	7097746.639	1120722.165
CC	( )		7101766.058	1124826.488
PT	( )	469+32.652 R1	7097471.244	1121034.041
Radius:		5729.58		
Delta:		08°18'24.109"	Left	
Degree of Curvature (Arc):		00°59'59.999"		
Length:		830.67		
Tangent:		416.064		
Chord:		829.943		
Middle Ordinate:		15.047		
External:		15.087		
Back Tangent Direction:		S40°		
Back Radial Direction:		S49°		
Chord Direction:		S44°		
Ahead Radial Direction:		S41°		
Ahead Tangent Direction:		S48°		
Element: Linear				
PT	( )	469+32.652 R1	7097471.244	1121034.041
PC	( )	476+25.172 R1	7097023.267	1121562.151
Tangential Direction:		S49°		
Tangential Length:		692.52		
Element: Circular				
PC	( )	476+25.172 R1	7097023.267	1121562.151
PI	( )	480+48.954 R1	7096751.795	1121887.564
CC	( )		7092623.64	1117891.814
PT	( )	484+71.195 R1	7096435.401	1122169.497
Radius:		5729.58		
Delta:		08°27'36.805"	Right	
Degree of Curvature (Arc):		00°59'59.999"		
Length:		846.023		
Tangent:		423.782		
Chord:		845.254		
Middle Ordinate:		15.608		
External:		15.651		
Back Tangent Direction:		S50°		
Back Radial Direction:		S39°		
Chord Direction:		S45°		
Ahead Radial Direction:		S48°		
Ahead Tangent Direction:		S41°		
Element: Linear				
PT	( )	484+71.195 R1	7096435.401	1122169.497
PC	( )	507+06.685 R1	7094746.314	1123633.874
Tangential Direction:		S40°		
Tangential Length:		2235.49		
Element: Circular				
PC	( )	507+06.685 R1	7094746.314	1123633.874
PI	( )	510+96.309 R1	7094448.506	1123885.106
CC	( )		7098440.777	1128013.262
PT	( )	514+84.735 R1	7094187.452	1124174.341
Radius:		5729.58		
Delta:		07°46'49.790"	Left	
Degree of Curvature (Arc):		00°59'59.999"		
Length:		778.05		
Tangent:		389.624		
Chord:		777.452		
Middle Ordinate:		13.202		
External:		13.232		
Back Tangent Direction:		S40°		
Back Radial Direction:		S49°		
Chord Direction:		S44°		
Ahead Radial Direction:		S42°		
Ahead Tangent Direction:		S47°		
Element: Linear				
PT	( )	514+84.735 R1	7094187.452	1124174.341
PC	( )	549+89.315 R1	7091876.987	1126809.457
Tangential Direction:		S48°		
Tangential Length:		3504.58		
Element: Circular				
PC	( )	549+89.315 R1	7091876.987	1126809.457
PI	( )	564+36.206 R1	7090941.379	1127913.147
CC	( )		7087506.458	1123104.52
PT	( )	578+23.835 R1	7089593.935	1128440.298
Radius:		5729.58		
Delta:		28°20'42.684"	Right	
Degree of Curvature (Arc):		00°59'59.999"		
Length:		2834.52		
Tangent:		1446.891		
Chord:		2805.703		
Middle Ordinate:		174.394		
External:		179.868		
Back Tangent Direction:		S49°		
Back Radial Direction:		S40°		

Alignment data for contractor information only. Data taken from as builts: 0053-05-043 and 0053-06-014 and 0053-06-123 and Google Earth image.

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

ROADWAY ALIGNMENT DATA (US 84 SOUTH)
NO SCALE

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		34

	Chord Direction:	S35°		
	Ahead Radial Direction:	S68°		
	Ahead Tangent Direction:	S21°		
Element: Linear				
PT	( )	578+23.835 R1	7089593.935	1128440.298
PI	( )	604+72.225 R1	7087110.91	1129361.467
	Tangential Direction:	S20°		
	Tangential Length:	2648.39		
Element: Linear				
PI	( )	604+72.225 R1	7087110.91	1129361.467
PC	( )	623+38.175 R1	7085360.313	1130007.361
	Tangential Direction:	S20°		
	Tangential Length:	1865.95		
Element: Circular				
PC	( )	623+38.175 R1	7085360.313	1130007.361
PI	( )	630+90.423 R1	7084646.545	1130244.876
CC	( )		7086264.838	1132725.606
PT	( )	638+09.457 R1	7084141.546	1130802.418
	Radius:	2864.79		
	Delta:	29°25'32.255"	Left	
	Degree of Curvature (Arc):	01°59'59.997"		
	Length:	1471.282		
	Tangent:	752.248		
	Chord:	1455.166		
	Middle Ordinate:	93.934		
	External:	97.118		
	Back Tangent Direction:	S18°		
	Back Radial Direction:	S71°		
	Chord Direction:	S33°		
	Ahead Radial Direction:	S42°		
	Ahead Tangent Direction:	S47°		
Element: Linear				
PT	( )	638+09.457 R1	7084141.546	1130802.418
PC	( )	700+85.087 R1	7080057.548	1135567.341
	Tangential Direction:	S49°		
	Tangential Length:	6275.63		
Element: Circular				
PC	( )	700+85.087 R1	7080057.548	1135567.341
PI	( )	704+45.064 R1	7079829.671	1135846.009
CC	( )		7077839.835	1133753.844
PT	( )	708+01.287 R1	7079539.936	1136059.636
	Radius:	2864.79		
	Delta:	14°19'26.382"	Right	
	Degree of Curvature (Arc):	01°59'59.997"		
	Length:	716.2		
	Tangent:	359.977		
	Chord:	714.336		
	Middle Ordinate:	22.352		
	External:	22.528		
	Back Tangent Direction:	S50°		
	Back Radial Direction:	S39°		
	Chord Direction:	S43°		
	Ahead Radial Direction:	S53°		
	Ahead Tangent Direction:	S36°		
Element: Linear				
PT	( )	708+01.287 R1	7079539.936	1136059.636
PC	( )	719+78.087 R1	7078580.837	1136741.536
	Tangential Direction:	S35°		
	Tangential Length:	1176.8		
Element: Circular				
PC	( )	719+78.087 R1	7078580.837	1136741.536
PI	( )	720+72.130 R1	7078504.196	1136796.037
CC	( )		7075260.357	1132072.221
PT	( )	721+66.157 R1	7078425.808	1136847.994
	Radius:	5729.58		
	Delta:	01°52'50.518"	Right	
	Degree of Curvature (Arc):	00°59'59.999"		
	Length:	188.07		
	Tangent:	94.043		
	Chord:	188.062		
	Middle Ordinate:	0.772		
	External:	0.772		
	Back Tangent Direction:	S35°		
	Back Radial Direction:	S54°		
	Chord Direction:	S34°		
	Ahead Radial Direction:	S56°		
	Ahead Tangent Direction:	S33°		
Element: Linear				
PT	( )	721+66.157 R1	7078425.808	1136847.994
PI	( )	742+43.922 R1	7076690.714	1137991.041
	Tangential Direction:	S33°		
	Tangential Length:	2077.765		
Element: Linear				
PI	( )	742+43.922 R1	7076690.714	1137991.041
PC	( )	796+55.332 R1	7072169.036	1140963.881
	Tangential Direction:	S33°		

	Tangential Length:	5411.41		
Element: Circular				
PC	( )	796+55.332 R1	7072169.036	1140963.881
PI	( )	799+14.425 R1	7071952.5	1141106.154
CC	( )		7073742.144	1143358.114
PT	( )	801+72.112 R1	7071765.004	1141284.967
	Radius:	2864.79		
	Delta:	10°20'08.147"	Left	
	Degree of Curvature (Arc):	01°59'59.997"		
	Length:	516.78		
	Tangent:	259.093		
	Chord:	516.08		
	Middle Ordinate:	11.645		
	External:	11.692		
	Back Tangent Direction:	S33°		
	Back Radial Direction:	S56°		
	Chord Direction:	S38°		
	Ahead Radial Direction:	S46°		
	Ahead Tangent Direction:	S43°		
Element: Linear				
PT	( )	801+72.112 R1	7071765.004	1141284.967
PC	( )	857+56.112 R1	7067724.062	1145138.776
	Tangential Direction:	S43°		
	Tangential Length:	5584		
Element: Circular				
PC	( )	857+56.112 R1	7067724.062	1145138.776
PI	( )	865+54.556 R1	7067146.245	1145689.813
CC	( )		7063769.861	1140992.406
PT	( )	873+42.782 R1	7066439.79	1146061.88
	Radius:	5729.58		
	Delta:	15°52'00.100"	Right	
	Degree of Curvature (Arc):	00°59'59.999"		
	Length:	1586.67		
	Tangent:	798.444		
	Chord:	1581.605		
	Middle Ordinate:	54.836		
	External:	55.366		
	Back Tangent Direction:	S43°		
	Back Radial Direction:	S46°		
	Chord Direction:	S35°		
	Ahead Radial Direction:	S62°		
	Ahead Tangent Direction:	S27°		
Element: Linear				
PT	( )	873+42.782 R1	7066439.79	1146061.88
PC	( )	910+43.132 R1	7063165.758	1147786.207
	Tangential Direction:	S27°		
	Tangential Length:	3700.35		
Element: Circular				
PC	( )	910+43.132 R1	7063165.758	1147786.207
PI	( )	918+48.652 R1	7062453.143	1148161.763
CC	( )		7065837.047	1152854.966
PT	( )	926+43.682 R1	7061871.704	1148719.25
	Radius:	5729.581		
	Delta:	16°00'19.769"	Left	
	Degree of Curvature (Arc):	00°59'59.998"		
	Length:	1600.55		
	Tangent:	805.52		
	Chord:	1595.351		
	Middle Ordinate:	55.798		
	External:	56.347		
	Back Tangent Direction:	S27°		
	Back Radial Direction:	S62°		
	Chord Direction:	S35°		
	Ahead Radial Direction:	S46°		
	Ahead Tangent Direction:	S43°		
Element: Linear				
PT	( )	926+43.682 R1	7061871.704	1148719.25
PC	( )	976+08.212 R1	7058288.215	1152155.115
	Tangential Direction:	S43°		
	Tangential Length:	4964.53		
Element: Circular				
PC	( )	976+08.212 R1	7058288.215	1152155.115
PI	( )	981+35.528 R1	7057907.629	1152520.103
CC	( )		7062254.011	1156290.396
PT	( )	986+59.882 R1	7057600.054	1152948.425
	Radius:	5729.58		
	Delta:	10°31'00.106"	Left	
	Degree of Curvature (Arc):	00°59'59.999"		
	Length:	1051.67		
	Tangent:	527.316		
	Chord:	1050.194		
	Middle Ordinate:	24.112		
	External:	24.214		
	Back Tangent Direction:	S43°		
	Back Radial Direction:	S46°		

	Chord Direction:	S49°		
	Ahead Radial Direction:	S35°		
	Ahead Tangent Direction:	S54°		
Element: Linear				
PT	( )	986+59.882 R1	7057600.054	1152948.425
PC	( )	1065+75.522	7052982.99	1159378.05
	Tangential Direction:	S54°		
	Tangential Length:	7915.64		
Element: Circular				
PC	( )	1065+75.522	7052982.99	1159378.05
PI	( )	1074+04.142	7052499.722	1160051.151
CC	( )		7057637.211	1162719.655
PT	( )	1082+21.352	7052226.957	1160833.59
	Radius:	5729.58		
	Delta:	16°27'29.859"	Left	
	Degree of Curvature (Arc):	00°59'59.999"		
	Length:	1645.83		
	Tangent:	828.621		
	Chord:	1640.177		
	Middle Ordinate:	58.994		
	External:	59.608		
	Back Tangent Direction:	S54°		
	Back Radial Direction:	S35°		
	Chord Direction:	S62°		
	Ahead Radial Direction:	S19°		
	Ahead Tangent Direction:	S70°		
Element: Linear				
PT	( )	1082+21.352	7052226.957	1160833.59
PC	( )	1167+48.122	7049420.112	1168885.138
	Tangential Direction:	S70°		
	Tangential Length:	8526.77		
Element: Circular				
PC	( )	1167+48.122	7049420.112	1168885.138
PI	( )	1178+24.286	7049065.947	1169901.355
CC	( )		7046714.905	1167942.336
PT	( )	1188+07.002	7048130.304	1170433.052
	Radius:	2864.79		
	Delta:	41°10'39.307"	Right	
	Degree of Curvature (Arc):	01°59'59.997"		
	Length:	2058.88		
	Tangent:	1076.164		
	Chord:	2014.856		
	Middle Ordinate:	182.979		
	External:	195.463		
	Back Tangent Direction:	S70°		
	Back Radial Direction:	S19°		
	Chord Direction:	S50°		
	Ahead Radial Direction:	S60°		
	Ahead Tangent Direction:	S29°		
Element: Linear				
PT	( )	1188+07.002	7048130.304	1170433.052
PI	( )	1224+97.204	7044921.954	1172256.26
	Tangential Direction:	S29°		
	Tangential Length:	3690.202		
Element: Linear				
PI	( )	1224+97.204	7044921.954	1172256.26
POT	( )	1252+89.121	7042514.501	1173670.109
	Tangential Direction:	S30°		
	Tangential Length:	2791.917		

Alignment data for contractor information only. Data taken from as builts: 0053-05-043 and 0053-06-014 and 0053-06-123 and Google Earth image.

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

ROADWAY ALIGNMENT DATA (US 84 SOUTH) NO SCALE

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		35

DATE: 1/30/2024 12:33:35 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/ROADWAY_ALIGNMENT_DATA.dgn

DW DW CK CK

Horizontal Alignment Report

Project:	CSJ: 0053-01-136
Description:	US 84 & US 87 Median Cable Barrier
Alignment Name:	BL CL-65
Alignment Description:	
Alignment Style:	Alignment\Baseline

		Station	Northing	Easting
Element: Linear				
POT	( )	-8+977.500 R1	7042771.346	940155.193
PC	( )	-5+967.163 R1	7045414.787	941595.454
Tangential Direction:		N28°35'00.445"E		
Tangential Length:		3010.337		
Element: Circular				
PC	( )	-5+967.163 R1	7045414.787	941595.454
PI	( )	-5+289.760 R1	7046009.629	941919.549
CC	( )		7047242.293	938241.268
PT	( )	-4+626.298 R1	7046679.643	942019.332
Radius:		3819.73		
Delta:		20°06'46.484"	Left	
Degree of Curvature (Arc):		01°29'59.984"		
Length:		1340.865		
Tangent:		677.403		
Chord:		1333.991		
Middle Ordinate:		58.686		
External:		59.601		
Back Tangent Direction:		N28°35'00.445"E		
Back Radial Direction:		S61°24'59.555"E		
Chord Direction:		N18°31'37.203"E		
Ahead Radial Direction:		S81°31'46.039"E		
Ahead Tangent Direction:		N08°28'13.961"E		
Element: Linear				
PT	( )	-4+626.298 R1	7046679.643	942019.332
PI	( )	-2+908.402 R1	7048378.799	942272.379
Tangential Direction:		N08°28'13.961"E		
Tangential Length:		1717.896		
Element: Linear				
PI	( )	-2+908.402 R1	7048378.799	942272.379
PC	( )	-1+400.555 R1	7049870.505	942492.414
Tangential Direction:		N08°23'27.340"E		
Tangential Length:		1507.847		
Element: Circular				
PC	( )	-1+400.555 R1	7049870.505	942492.414
PI	( )	-0+279.453 R1	7050979.607	942656.012
CC	( )		7049313.106	946271.255
PT	( )	0+780.401 R1	7051824.361	943393.073
Radius:		3819.73		
Delta:		32°42'51.252"	Right	
Degree of Curvature (Arc):		01°29'59.984"		
Length:		2180.956		
Tangent:		1121.102		
Chord:		2151.451		
Middle Ordinate:		154.604		
External:		161.125		
Back Tangent Direction:		N08°23'27.340"E		
Back Radial Direction:		S81°36'32.660"E		
Chord Direction:		N24°44'52.966"E		
Ahead Radial Direction:		S48°53'41.408"E		
Ahead Tangent Direction:		N41°06'18.592"E		
Element: Linear				
PT	( )	0+780.401 R1	7051824.361	943393.073
PI	( )	1+492.074 R1	7052360.61	943860.958
Tangential Direction:		N41°06'18.592"E		
Tangential Length:		711.673		
Element: Linear				
PI	( )	1+492.074 R1	7052360.61	943860.958
PI	( )	4+524.019 R1	7054642.588	945857.272
Tangential Direction:		N41°10'48.019"E		
Tangential Length:		3031.945		
Element: Linear				
PI	( )	4+524.019 R1	7054642.588	945857.272
PI	( )	6+543.594 R1	7056222.011	947115.885
Tangential Direction:		N38°33'02.486"E		
Tangential Length:		2019.575		
Element: Linear				
PI	( )	6+543.594 R1	7056222.011	947115.885
PI	( )	8+148.081 R1	7057426.997	948175.312
Tangential Direction:		N41°19'19.336"E		
Tangential Length:		1604.486		
Element: Linear				
PI	( )	8+148.081 R1	7057426.997	948175.312
PI	( )	17+064.820 R1	7064411.219	953718.675
Tangential Direction:		N38°26'20.248"E		
Tangential Length:		8916.739		
Element: Linear				
PI	( )	17+064.820 R1	7064411.219	953718.675
PC	( )	18+223.397 R1	7065318.436	954439.272
Tangential Direction:		N38°27'35.639"E		
Tangential Length:		1158.578		
Element: Circular				
PC	( )	18+223.397 R1	7065318.436	954439.272
PI	( )	19+479.874 R1	7066302.312	955220.758
CC	( )		7067694.181	951448.256
PT	( )	20+651.178 R1	7067557.99	955265.558
Radius:		3819.73		
Delta:		36°24'59.782"	Left	
Degree of Curvature (Arc):		01°29'59.984"		
Length:		2427.781		
Tangent:		1256.477		
Chord:		2387.122		
Middle Ordinate:		191.266		
External:		201.348		
Back Tangent Direction:		N38°27'35.639"E		
Back Radial Direction:		S51°32'24.361"E		
Chord Direction:		N20°15'05.748"E		
Ahead Radial Direction:		S87°57'24.143"E		
Ahead Tangent Direction:		N02°02'35.857"E		
Element: Linear				
PT	( )	20+651.178 R1	7067557.99	955265.558
PI	( )	22+059.380 R1	7068965.296	955315.767
Tangential Direction:		N02°02'35.857"E		
Tangential Length:		1408.202		
Element: Linear				
PI	(BL CL-16)	22+059.380 R1	7068965.296	955315.767
PI	( )	64+019.190 R1	7110902.268	956700.004
Tangential Direction:		N01°53'25.830"E		
Tangential Length:		41959.81		
Element: Linear				
PI	(BL CL-20)	64+019.190 R1	7110902.268	956700.004
PI	( )	66+681.436 R1	7113562.938	956791.55
Tangential Direction:		N01°58'14.190"E		
Tangential Length:		2662.245		
Element: Linear				
PI	( )	66+681.436 R1	7113562.938	956791.55
PC	( )	67+123.154 R1	7114004.484	956803.905
Tangential Direction:		N01°36'09.811"E		
Tangential Length:		441.719		
Element: Circular				
PC	( )	67+123.154 R1	7114004.484	956803.905
PI	( )	67+996.003 R1	7114876.991	956828.318
CC	( )		7113914.474	960020.836
PT	( )	68+827.841 R1	7115617.592	957290.243
Radius:		3218.19		
Delta:		30°20'59.207"	Right	
Degree of Curvature (Arc):		01°46'49.342"		
Length:		1704.687		
Tangent:		872.849		
Chord:		1684.827		
Middle Ordinate:		112.214		
External:		116.268		
Back Tangent Direction:		N01°36'09.811"E		
Back Radial Direction:		S88°23'50.189"E		
Chord Direction:		N16°46'39.415"E		
Ahead Radial Direction:		S58°02'50.982"E		
Ahead Tangent Direction:		N31°57'09.018"E		
Element: Linear				
PT	( )	68+827.841 R1	7115617.592	957290.243
PI	( )	69+603.053 R1	7116275.349	957700.497
Tangential Direction:		N31°57'09.018"E		
Tangential Length:		775.211		
Element: Linear				
PI	(BL CL-27)	69+603.053 R1	7116275.349	957700.497
PI	( )	70+880.349 R1	7117358.731	958377.085
Tangential Direction:		N31°59'07.420"E		
Tangential Length:		1277.297		
Element: Linear				
PI	(BL CL-37)	70+880.349 R1	7117358.731	958377.085
PI	( )	73+118.076 R1	7119255.126	959564.985
Tangential Direction:		N32°03'46.754"E		
Tangential Length:		2237.727		
Element: Linear				
PI	( )	73+118.076 R1	7119255.126	959564.985
PC	( )	74+615.248 R1	7120524.553	960358.76
Tangential Direction:		N32°01'04.063"E		
Tangential Length:		1497.172		
Element: Circular				
PC	( )	74+615.248 R1	7120524.553	960358.76
PI	( )	75+645.417 R1	7121398.017	960904.938
CC	( )		7122548.813	957121.504
PT	( )	76+627.665 R1	7122427.667	960937.625
Radius:		3818.043		
Delta:		30°11'58.194"	Left	
Degree of Curvature (Arc):		01°30'02.370"		
Length:		2012.417		
Tangent:		1030.169		
Chord:		1989.203		
Middle Ordinate:		131.823		
External:		136.537		
Back Tangent Direction:		N32°01'04.063"E		
Back Radial Direction:		S57°58'55.937"E		
Chord Direction:		N16°55'04.966"E		
Ahead Radial Direction:		S88°10'54.132"E		
Ahead Tangent Direction:		N01°49'05.868"E		
Element: Linear				
PT	( )	76+627.665 R1	7122427.667	960937.625
PI	( )	77+081.956 R1	7122881.729	960952.04
Tangential Direction:		N01°49'05.868"E		
Tangential Length:		454.291		
Element: Linear				
PI	(BL CL-38)	77+081.956 R1	7122881.729	960952.04
PI	( )	78+230.059 R1	7124029.266	960988.087
Tangential Direction:		N01°47'57.170"E		
Tangential Length:		1148.103		
Element: Linear				
PI	(BL CL-41)	78+230.059 R1	7124029.266	960988.087
PI	(BL CL-42)	79+019.317 R1	7124818.189	961011.084
Tangential Direction:		N01°40'10.841"E		
Tangential Length:		789.258		
Element: Linear				
PI	( )	79+019.317 R1	7124818.189	961011.084
PI	( )	79+757.337 R1	7125555.732	961037.629
Tangential Direction:		N02°03'40.598"E		
Tangential Length:		738.02		
Element: Linear				
PI	( )	79+757.337 R1	7125555.732	961037.629
PI	( )	80+910.371 R1	7126699.39	961184.371
Tangential Direction:		N07°18'41.938"E		
Tangential Length:		1153.034		
Element: Linear				
PI	( )	80+910.371 R1	7126699.39	961184.371
PC	( )	81+131.768 R1	7126919.568	961207.57
Tangential Direction:		N06°00'53.001"E		
Tangential Length:		221.397		
Element: Circular				
PC	( )	81+131.768 R1	7126919.568	961207.57
PI	( )	82+021.028 R1	7127803.933	961300.75
CC	( )		7127306.084	957539.184
PT	( )	82+876.987 R1	7128633.608	960980.714
Radius:		3688.692		
Delta:		27°06'29.435"	Left	
Degree of Curvature (Arc):		01°33'11.814"		
Length:		1745.22		
Tangent:		889.26		
Chord:		1728.987		
Middle Ordinate:		102.733		
External:		105.677		
Back Tangent Direction:		N06°00'53.001"E		
Back Radial Direction:		S83°59'06.999"E		
Chord Direction:		N07°		
Ahead Radial Direction:		N68°54'23.566"E		
Ahead Tangent Direction:		N21°		
Element: Linear				
PT	( )	82+876.987 R1	7128633.608	960980.714
PC	( )	83+288.203 R1	7129017.27	960832.722
Tangential Direction:		N21°		
Tangential Length:		411.216		
Element: Circular				
PC	( )	83+288.203 R1	7129017.27	960832.722
PI	( )	84+028.368 R1	7129707.84	960566.343
CC	( )		7130380.662	964367.236
PT	( )	84+750.117 R1	7130447.889	960579.478
Radius:		3788.354		
Delta:		22°06'36.952"	Right	
Degree of Curvature (Arc):		01°30'44.708"		
Length:		1461.914		
Tangent:		740.165		
Chord:		1452.86		
Middle Ordinate:		70.3		
External:		71.629		
Back Tangent Direction:		N21°		
Back Radial Direction:		N68°54'23.566"E		
Chord Direction:		N10°		
Ahead Radial Direction:		S88°58'59.482"E		
Ahead Tangent Direction:		N01°01'00.518"E		
Element: Linear				
PT	( )	84+750.117 R1	7130447.889	960579.478
PI	( )	85+160.939 R1	7130858.646	960586.769
Tangential Direction:		N01°01'00.518"E		
Tangential Length:		410.822		
Element: Linear				
PI	(BL CL-52)	85+160.939 R1	7130858.646	960586.769
PI	(BL CL-55)	86+226.116 R1	7131923.139	960624.942
Tangential Direction:		N02°03'13.550"E		
Tangential Length:		1065.177		
Element: Linear				
PI	( )	86+226.116 R1	7131923.139	960624.942
PI	( )	86+865.454 R1	7132562.1	960646.891
Tangential Direction:		N01°58'02.654"E		
Tangential Length:		639.338		
Element: Linear				
PI	(BL CL-55)	86+865.454 R1	7132562.1	960646.891
PI	( )	88+303.225 R1	7133998.988	960697.27
Tangential Direction:		N02°00'29.012"E		
Tangential Length:		1437.772		
Element: Linear				
PI	( )	88+303.225 R1	7133998.988	960697.27
PC	( )	89+152.035 R1	7134847.245	960727.908
Tangential Direction:		N02°04'06.687"E		
Tangential Length:		848.81		
Element: Circular				
PC	( )	89+152.035 R1	7134847.245	960727.908
PI	( )	89+546.657 R1	7135241.61	960742.152
CC	( )		7134947.361	957956.015
PT	( )	89+936.017 R1	7135624.299	960645.842
Radius:		2773.7		
Delta:		16°11'40.433"	Left	
Degree of Curvature (Arc):		02°03'56.449"		
Length:		783.982		
Tangent:		394.622		
Chord:		781.375		
Middle Ordinate:		27.653		
External:		27.931		
Back Tangent Direction:		N02°04'06.687"E		
Back Radial Direction:		S87°55'53.313"E		
Chord Direction:		N06°		
Ahead Radial Direction:		N75°52'26.254"E		
Ahead Tangent Direction:		N14°		
Element: Linear				
PT	( )	89+936.017 R1	7135624.299	960645.842
POT	( )	90+603.559 R1	7136271.655	960482.924
Tangential Direction:		N14°		
Tangential Length:		667.542		

Alignment data for contractor information only. Data taken from as builts: 0068-02-026 and 0068-03-011 and Google Earth image.

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US 84, ETC.

ROADWAY ALIGNMENT DATA (US 87) NO SCALE

SHEET 6 OF 6

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		36

DATE: 1/30/2024 12:25:31 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/ROADWAY ALIGNMENT DATA.dgn

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US 84 CABLE BARRIER

							543-6002	543-6020			432-6046	658-6095	134-6002	150-6001			314-6013
CABLE RUN	Station		General Location Crossover (C/O)		BASELINE OFFSET (LEFT OR RIGHT)	ENTIRE LENGTH	CABLE BARRIER SYSTEM (TL-4)	END TERM (EA)	3' WIDE MOW STRIP LENGTH	5" MOW STRIP AREA	5" MOW STRIP (CY)	INSTL DEL ASSM (D-DY)SZ 1(YFLX)GND	BACKFILL	BLADE	EMULS ASPH (EROSION CONT) (WIDTH)	EMULS ASPH (EROSION CONT) (AREA)	EMULS ASPH (EROSION CONT) (CSS-1H) (0.22gal/sy)
	From	To	From	To		LF	LF	EA	LF	SY	CY	EA	STA	STA	LF	SY	GAL
1	1009+39.50	1026+34.00	CO 1	LUBBOCK/LYNN CL	RT	1694.50	1667	1	1697	565.50	78.54	1	16.95	1.60	16	3012.44	662.74
					0053-01-136 Total:	1694.50	1667	1	1697	565.50	78.54	1	16.95	1.60	16	3012.44	662.74
1	1026+34.00	1040+14.50	LUBBOCK/LYNN CL	CO 2	RT	1380.50	1353	1	1383	460.83	64.00	1	13.81	1.31	16	2454.22	539.93
2	1042+22.50	1057+57.50	CO 2	CO 3	LT	1535.00	1480	2	1539	513.00	71.25	2	15.35	1.45	16	2728.89	600.36
3	1059+20.50	1140+35.50	CO 3	CO 4	RT	8115.00	8060	2	8119	2706.33	375.88	2	81.15	7.68	16	14426.67	3173.87
4	1141+72.50	1153+47.50	CO 4	CO 5	LT	1175.00	1120	2	1179	393.00	54.58	2	11.75	1.11	16	2088.89	459.56
5	1155+29.50	1220+84.50	CO 5	CO 6	RT	6555.00	6500	2	6559	2186.33	303.66	2	65.55	6.21	16	11653.33	2563.73
					0053-03-022 Total:	18760.50	18513	9	18779	6259.50	869.38	9	187.61	17.76	80	33352.00	7337.44
6	1222+73.50	1229+08.50	CO 6	CO 7	LT	635.00	580	2	639	213.00	29.58	2	6.35	0.60	16	1128.89	248.36
7	1230+69.50	1242+84.50	CO 7	CO 8	RT	1215.00	1160	2	1219	406.33	56.44	2	12.15	1.15	16	2160.00	475.20
8	1243+39.50	1284+34.50	CO 8	CO 9	LT	4095.00	4040	2	4099	1366.33	189.77	2	40.95	3.88	16	7280.00	1601.60
9	1286+00.50	1317+55.50	CO 9	CO 10	RT	3155.00	3100	2	3159	1053.00	146.25	2	31.55	2.99	16	5608.89	1233.96
10	1319+75.50	1347+50.50	CO 10	CO 11	LT	2775.00	2720	2	2779	926.33	128.66	2	27.75	2.63	16	4933.33	1085.33
11	1349+22.50	1412+37.50	CO 11	CO 12	RT	6315.00	6260	2	6319	2106.33	292.55	2	63.15	5.98	16	11226.67	2469.87
12	1414+03.50	1474+18.50	CO 12	CO 13	LT	6015.00	5960	2	6019	2006.33	278.66	2	60.15	5.70	16	10693.33	2352.53
13	1475+74.50	1510+69.50	CO 13	CO 14	RT	3495.00	3440	2	3499	1166.33	161.99	2	34.95	3.31	16	6213.33	1366.93
14	1512+45.50	1607+00.50	CO 14	CO 15	RT	9455.00	9400	2	9459	3153.00	437.92	2	94.55	8.95	16	16808.89	3697.96
15	1612+54.50	1643+09.50	CO 15	CO 16	LT	3055.00	3000	2	3059	1019.67	141.62	2	30.55	2.89	16	5431.11	1194.84
16	1644+57.50	1679+52.50	CO 16	CO 17	RT	3495.00	3440	2	3499	1166.33	161.99	2	34.95	3.31	16	6213.33	1366.93
17	1681+08.50	1689+23.50	CO 17	CO 18	LT	815.00	760	2	819	273.0	37.9	2	8.15	0.77	16	1448.89	318.76
18	1690+98.50	1756+13.50	CO 18	CO 19	RT	6515.00	6460	2	6519	2173.0	301.8	2	65.15	6.17	16	11582.22	2548.09
19	1756+94.50	1769+09.50	CO 19	CO 20	LT	1215.00	1160	2	1219	406.3	56.4	2	12.15	1.15	16	2160.00	475.20
20	1770+76.50	1821+51.50	CO 20	CO 21	LT	5075.00	5020	2	5079	1693.0	235.1	2	50.75	4.81	16	9022.22	1984.89
21	1823+18.50	1859+73.50	CO 21	CO 22	RT	3655.00	3600	2	3659	1219.67	169.40	2	36.55	3.46	16	6497.78	1429.51
22	1861+72.50	1886+07.50	CO 22	CO 23	RT	2435.00	2380	2	2439	813.00	112.92	2	24.35	2.31	16	4328.89	952.36
23	1887+66.50	1917+41.50	CO 23	CO 24	LT	2975.00	2920	2	2979	993.00	137.92	2	29.75	2.82	16	5288.89	1163.56
24	1919+01.50	1939+16.50	CO 24	CO 25	RT	2015.00	1960	2	2019	673.00	93.47	2	20.15	1.91	16	3582.22	788.09
25	1938+96.50	1944+71.50	CO 25	CO 26	LT	575.00	520	2	579	193.00	26.81	2	5.75	0.54	16	1022.22	224.89
26	1946+72.50	1953+87.50	CO 26	CO 27	RT	715.00	660	2	719	239.67	33.29	2	7.15	0.68	16	1271.11	279.64
27	1955+65.50	1973+80.50	CO 27	CO 28	LT	1815.00	1760	2	1819	606.33	84.21	2	18.15	1.72	16	3226.67	709.87
28	1975+31.50	1994+66.50	CO 28	CO 29	RT	1935.00	1880	2	1939	646.33	89.77	2	19.35	1.83	16	3440.00	756.80
29	1996+31.50	2004+86.50	CO 29	CO 30	LT	855.00	800	2	859	286.33	39.77	2	8.55	0.81	16	1520.00	334.40
30	2006+34.52	2009+09.52	CO 30	CO 31	RT	275.00	220	2	279	93.00	12.92	2	2.75	0.26	16	488.89	107.56
31	2010+54.50	2021+89.50	CO 31	CO 32	RT	1135.00	1080	2	1139	379.67	52.73	2	11.35	1.07	16	2017.78	443.91
					0053-04-045 Total:	75710.00	74280	52	75814	25271.33	3509.91	52	757.10	71.69	416	134595.56	29611.02

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CABLE BARRIER SUMMARY (North US 84)

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		37

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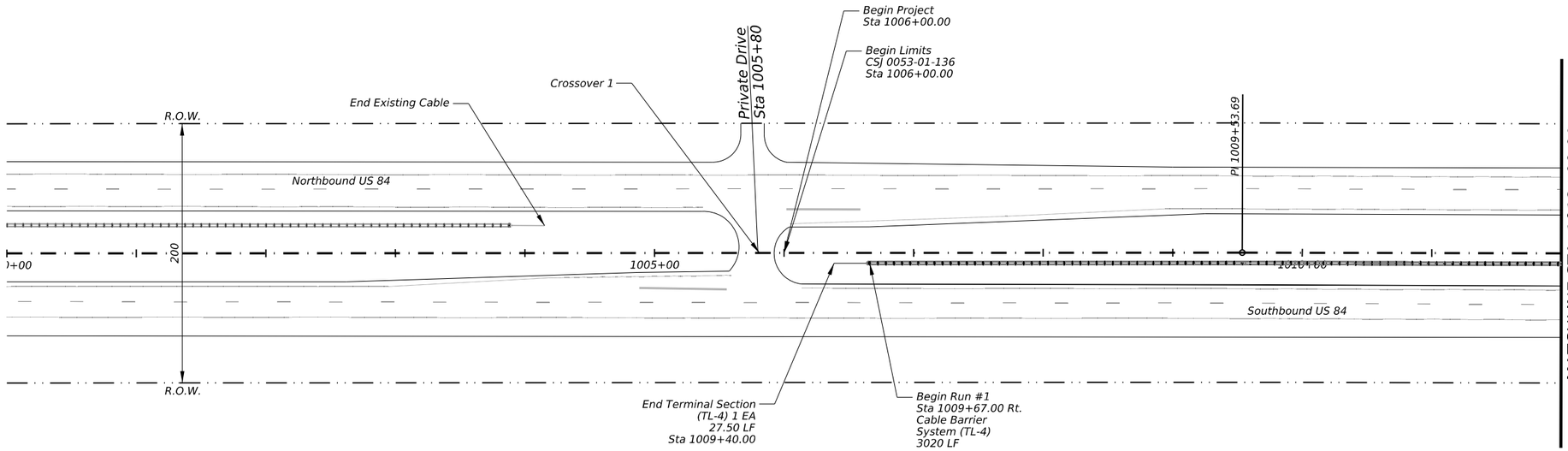

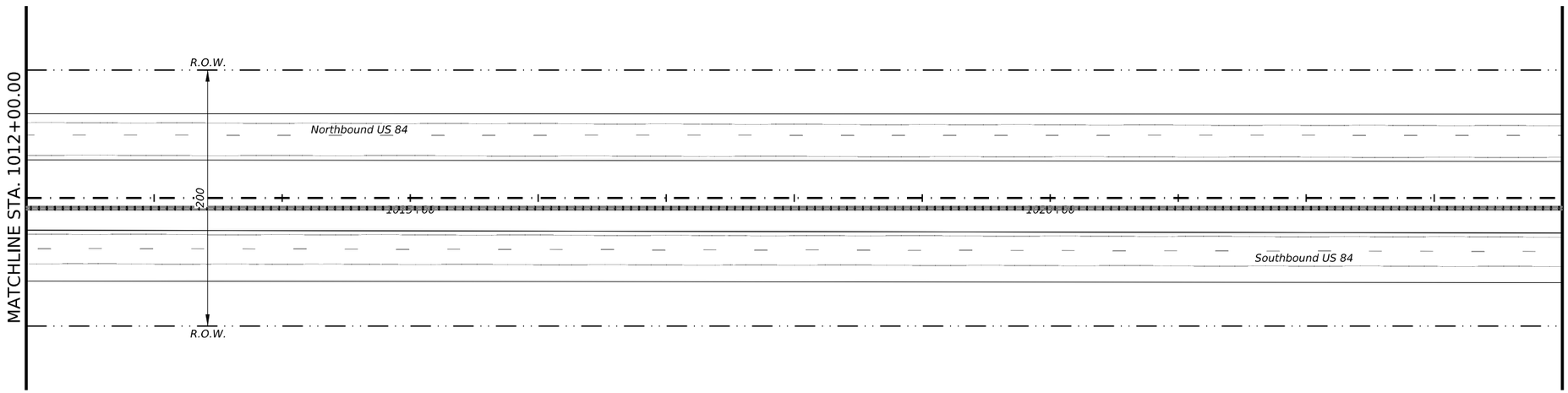

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US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 1 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		38

DATE: 1/30/2024 1:32:50 PM
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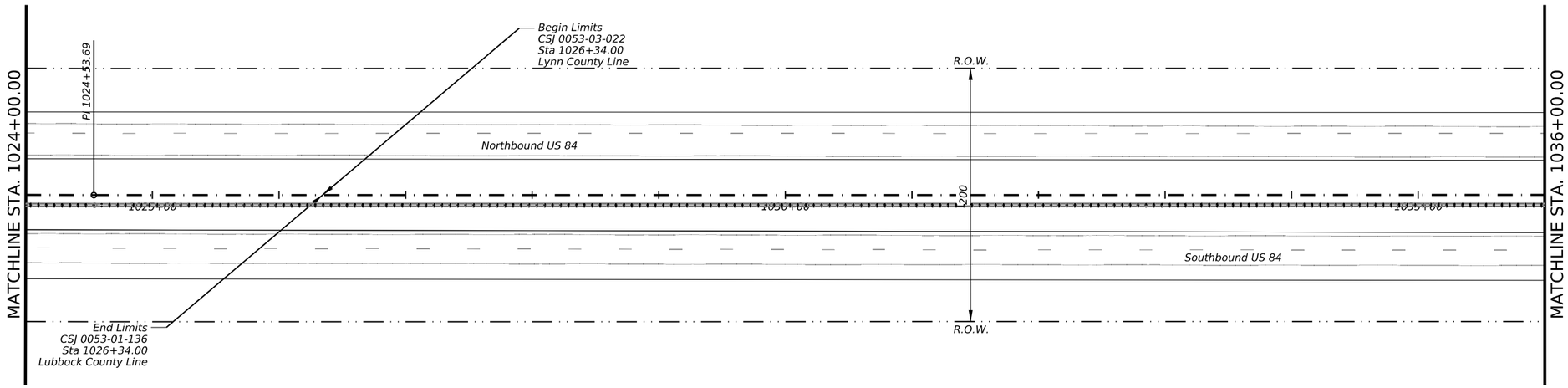

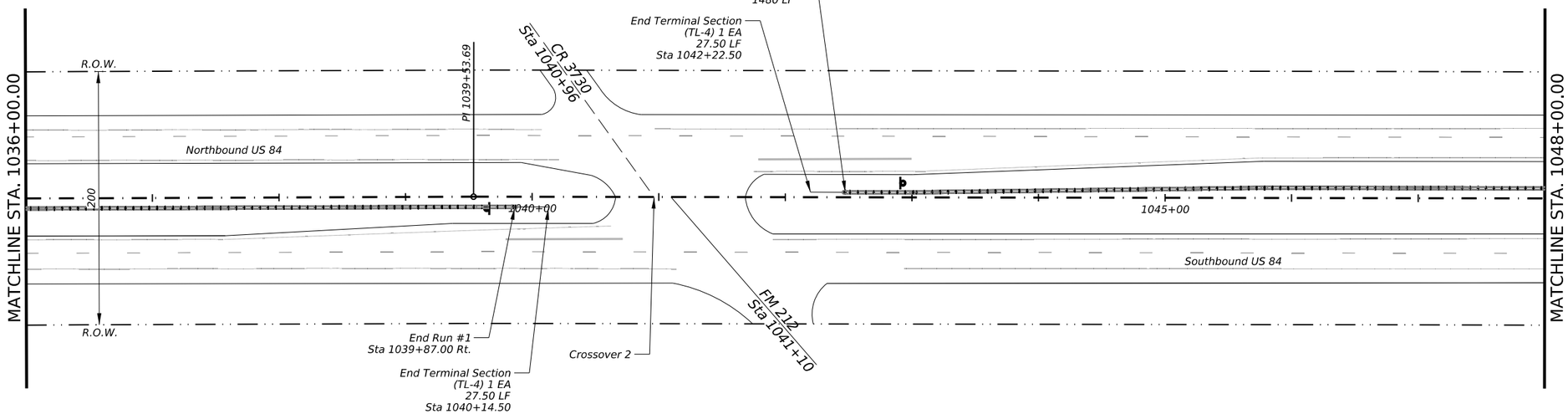

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US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 2 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		39

DATE: 1/30/2024 1:32:51 PM
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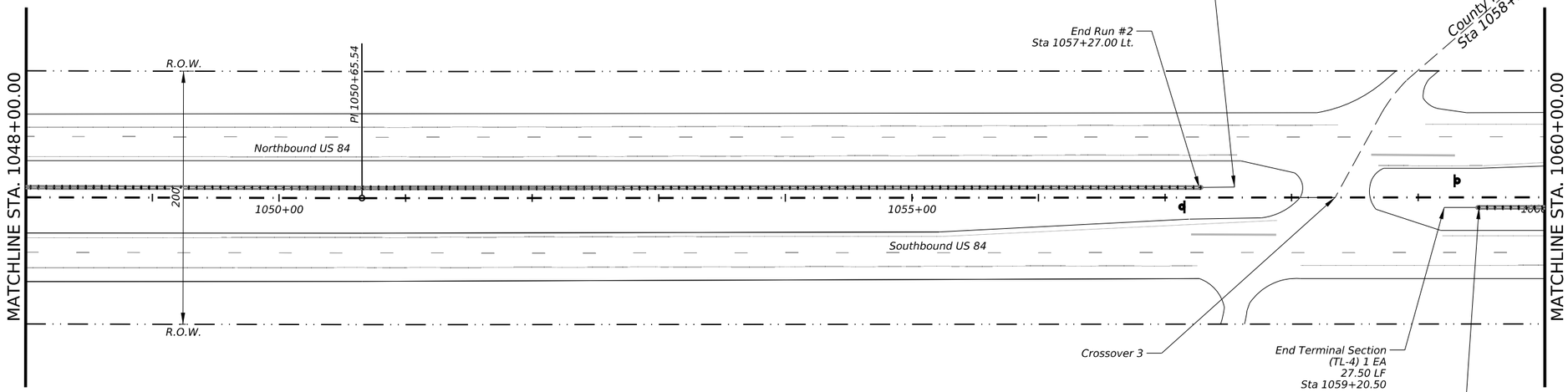

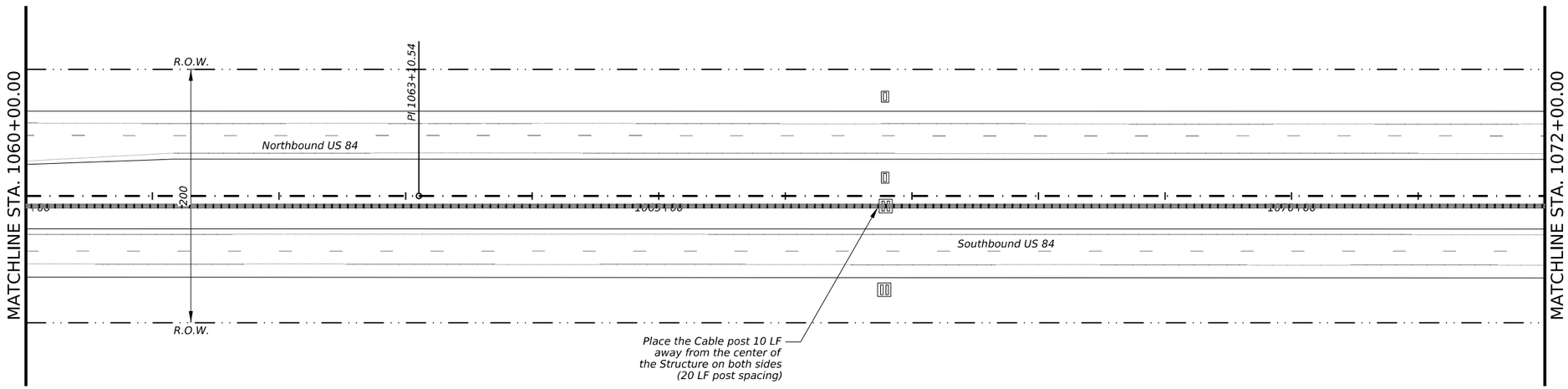

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US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 3 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		40

DATE: 1/30/2024 1:32:52 PM
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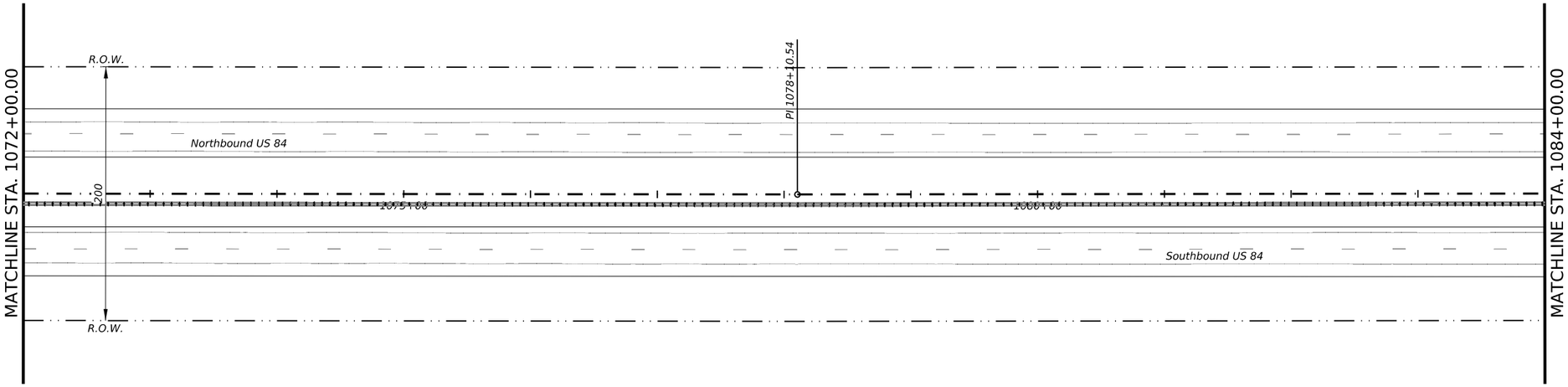

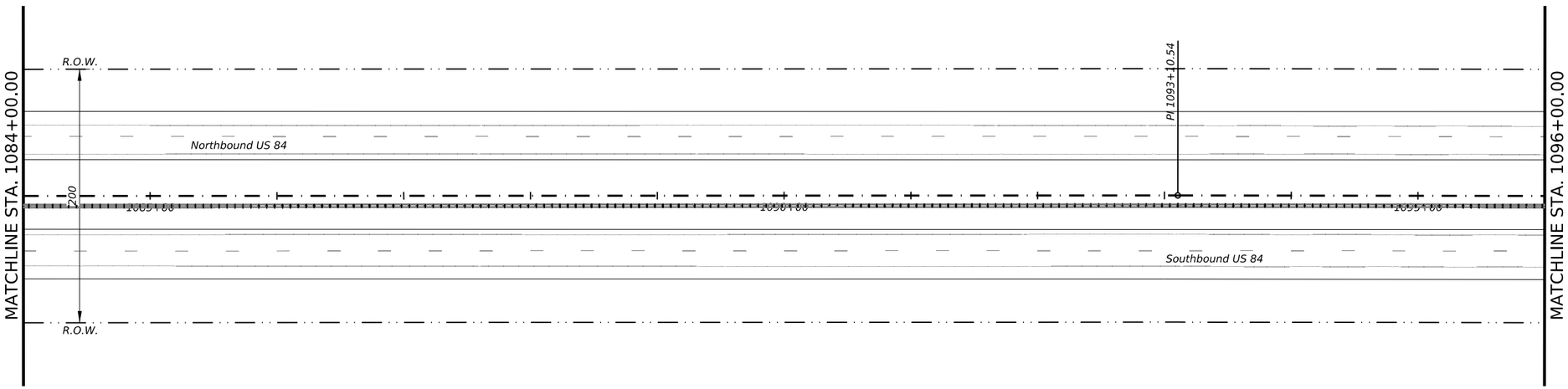

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1/26/2024

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US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 4 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		41

DATE: 1/30/2024 1:32:53 PM
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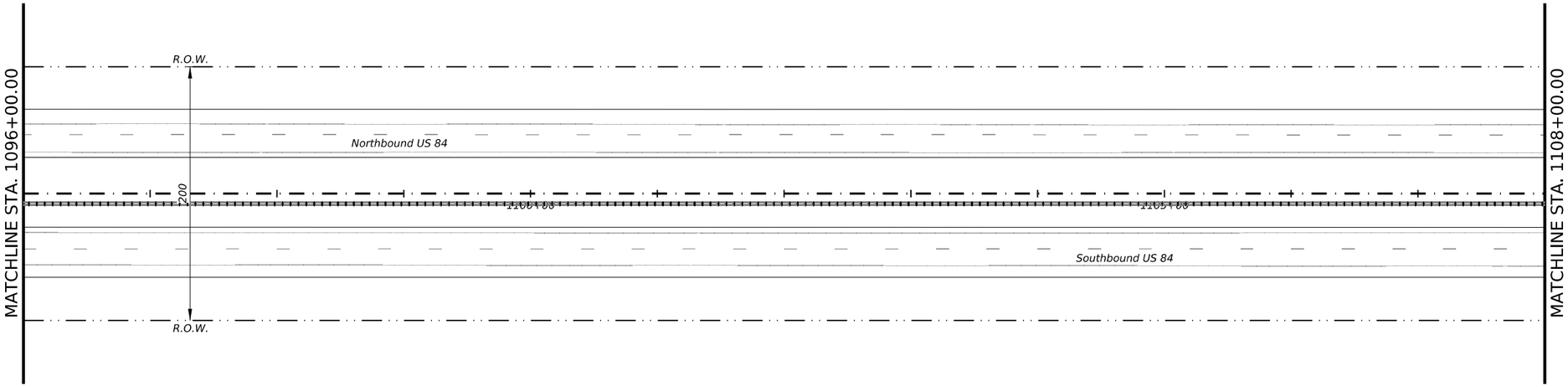

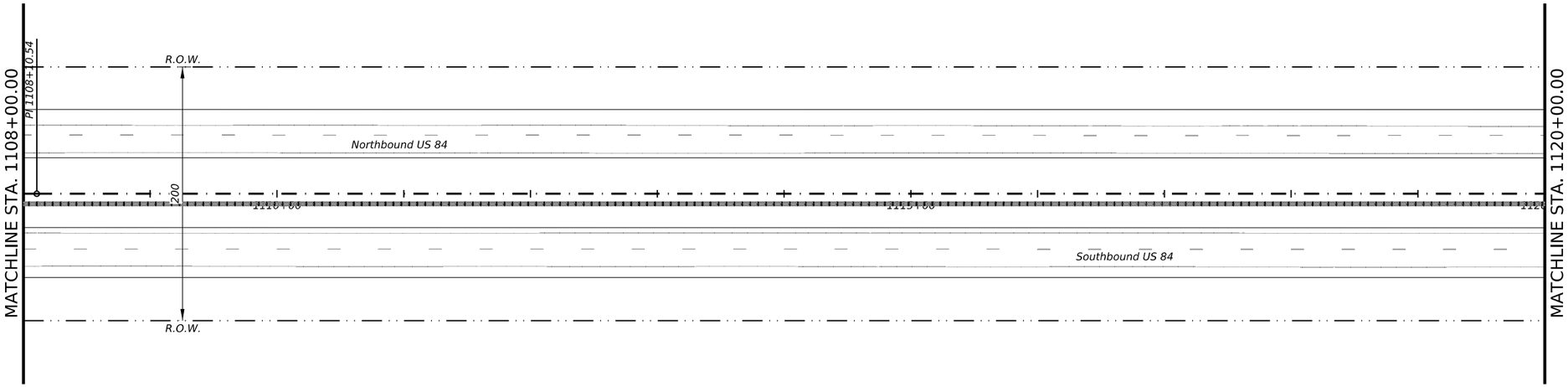

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 5 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		42

DATE: 1/30/2024 1:32:55 PM
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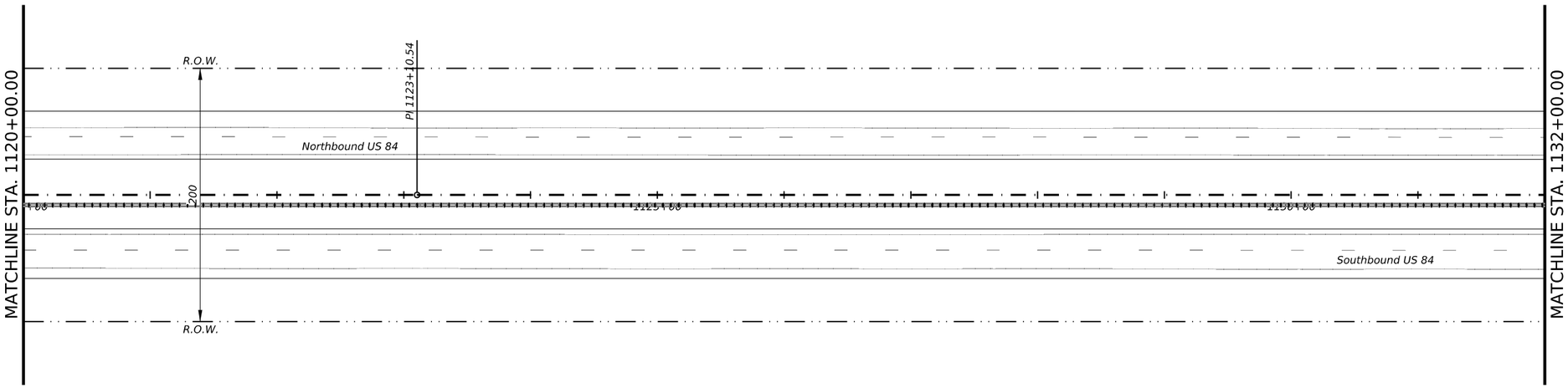

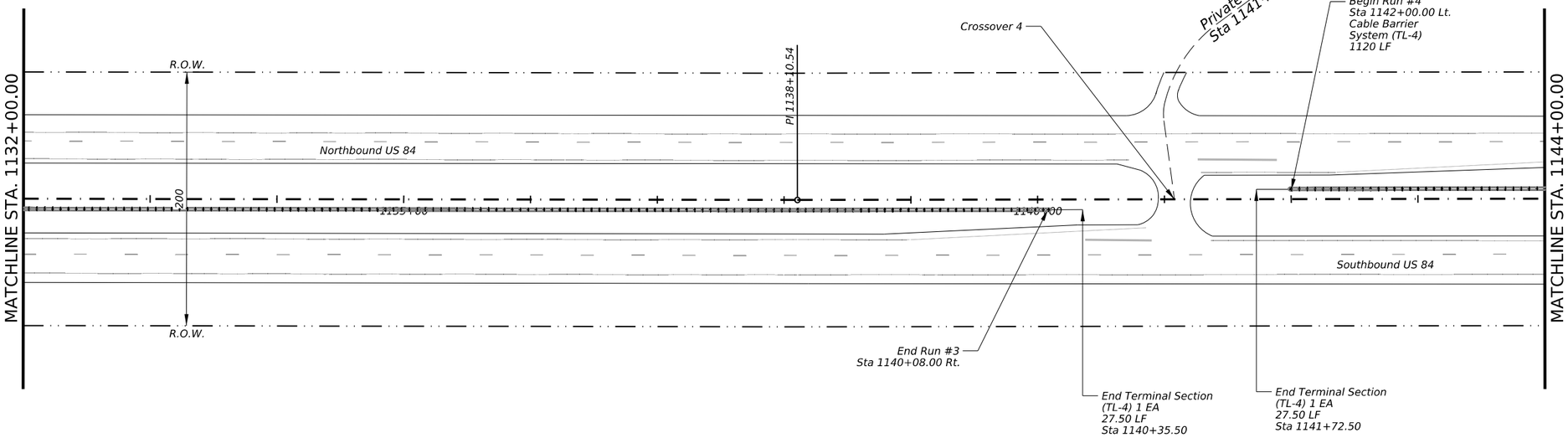

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US 84, ETC.

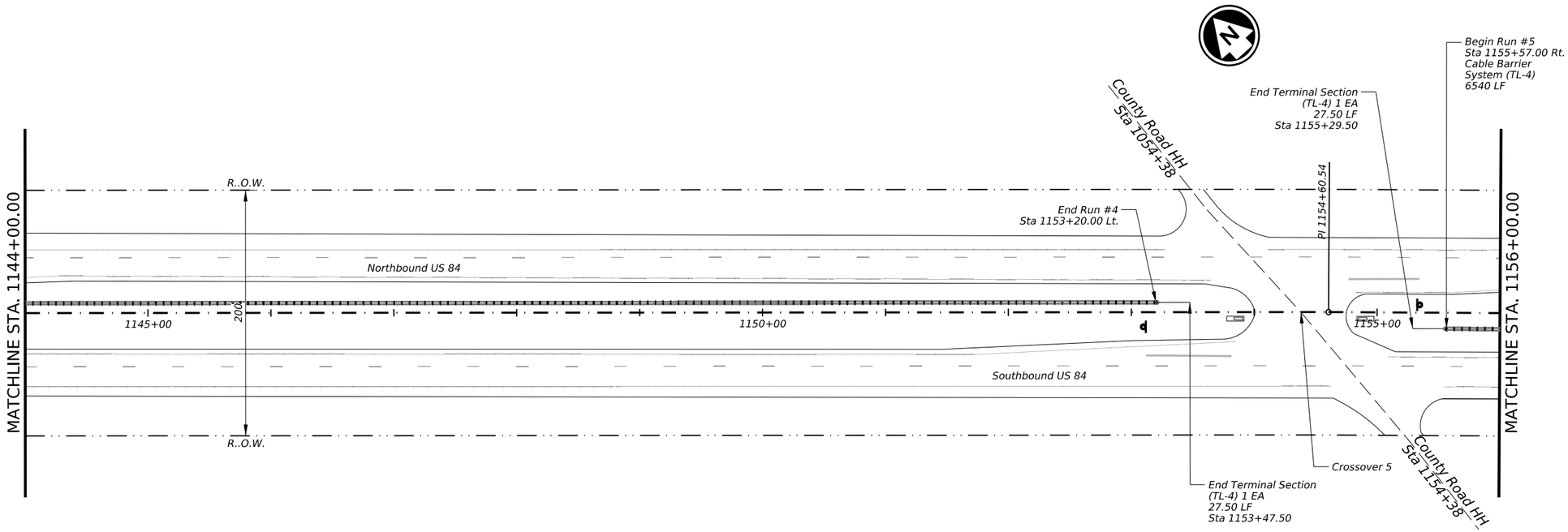
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

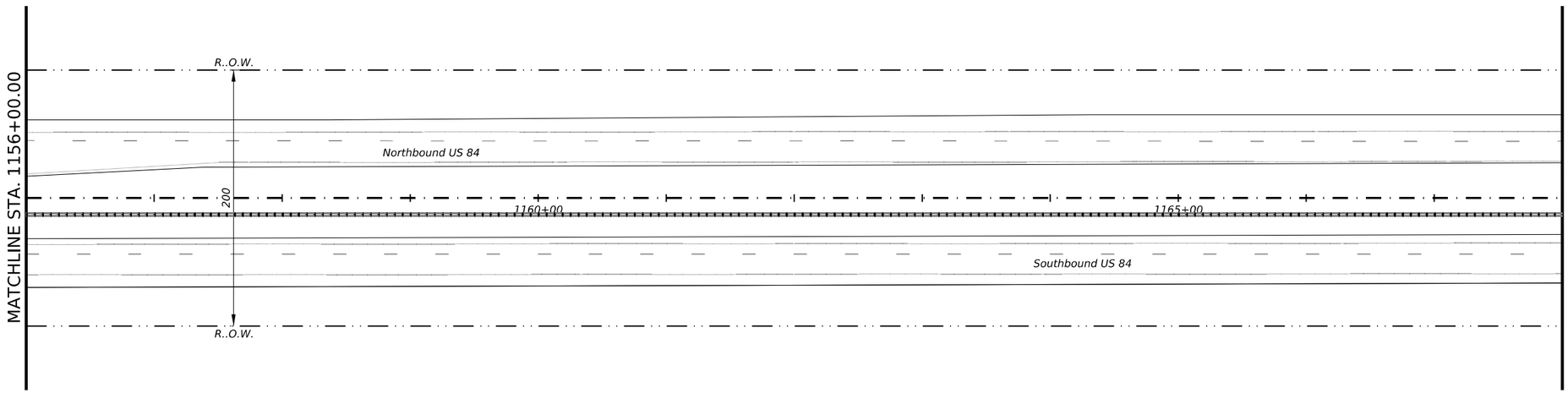
SHEET 6 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		43

DATE: 1/30/2024 1:32:56 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/005301136/4 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn

CK: DW: CK: DW:





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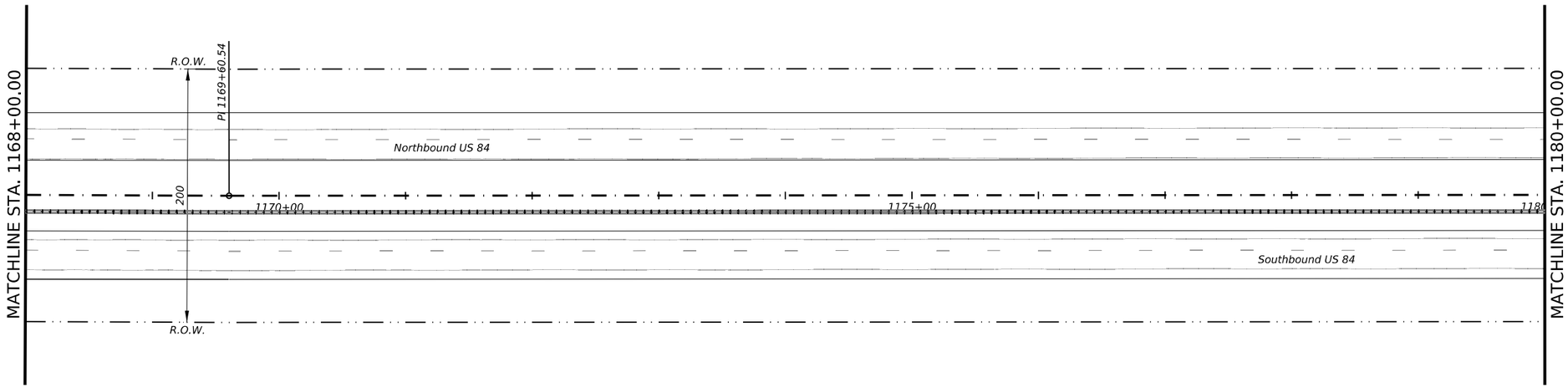
US 84, ETC.

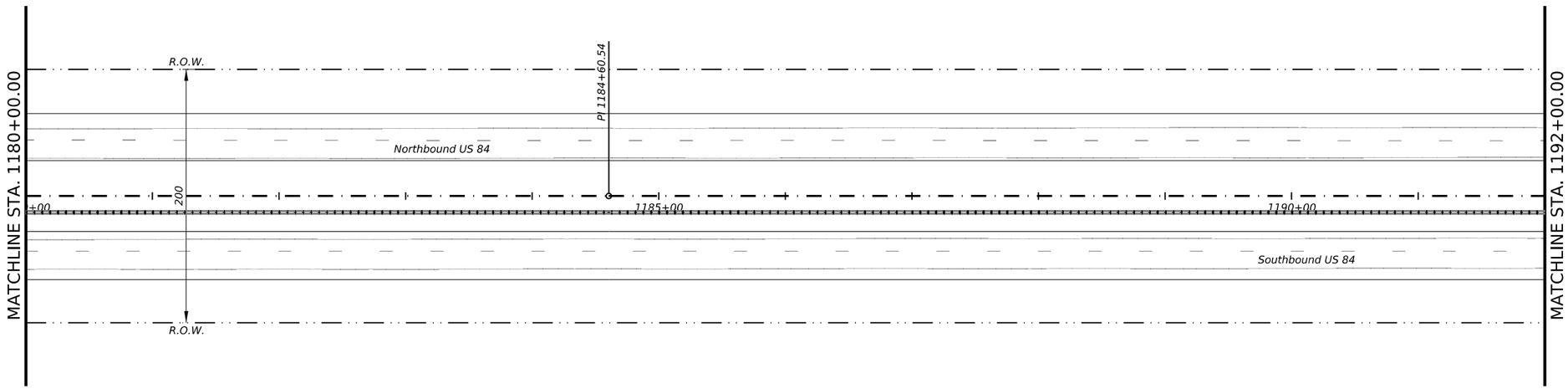
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 7 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		44

DATE: 1/30/2024 1:32:57 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





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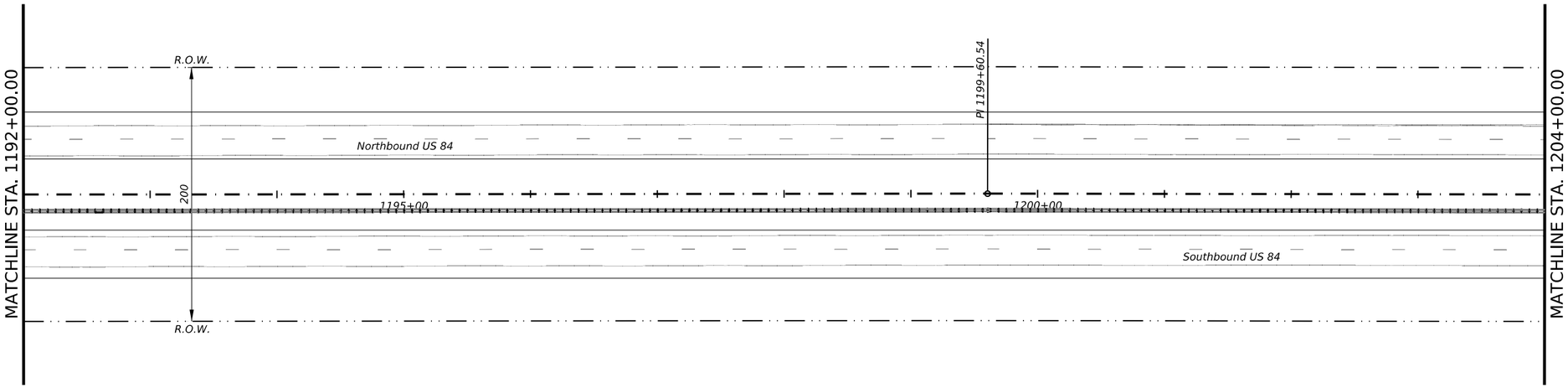
US 84, ETC.

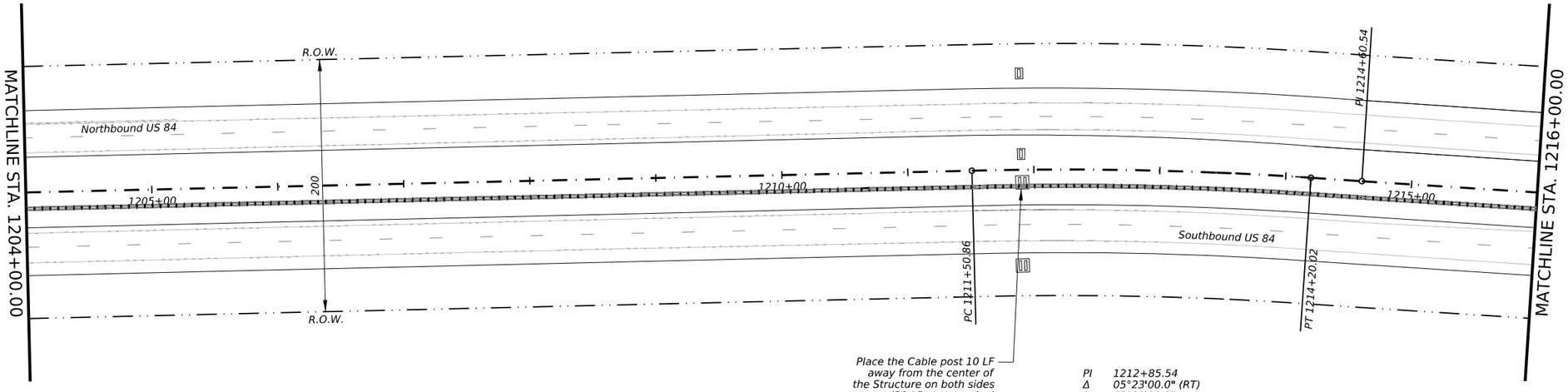
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 8 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		45

DATE: 1/30/2024 1:32:58 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





PI	1212+85.54
Δ	05°23'00.0" (RT)
D	02°00'00.2"
T	134.68'
L	269.16'
R	2864.72'
PC	1211+50.86
PT	1214+20.02

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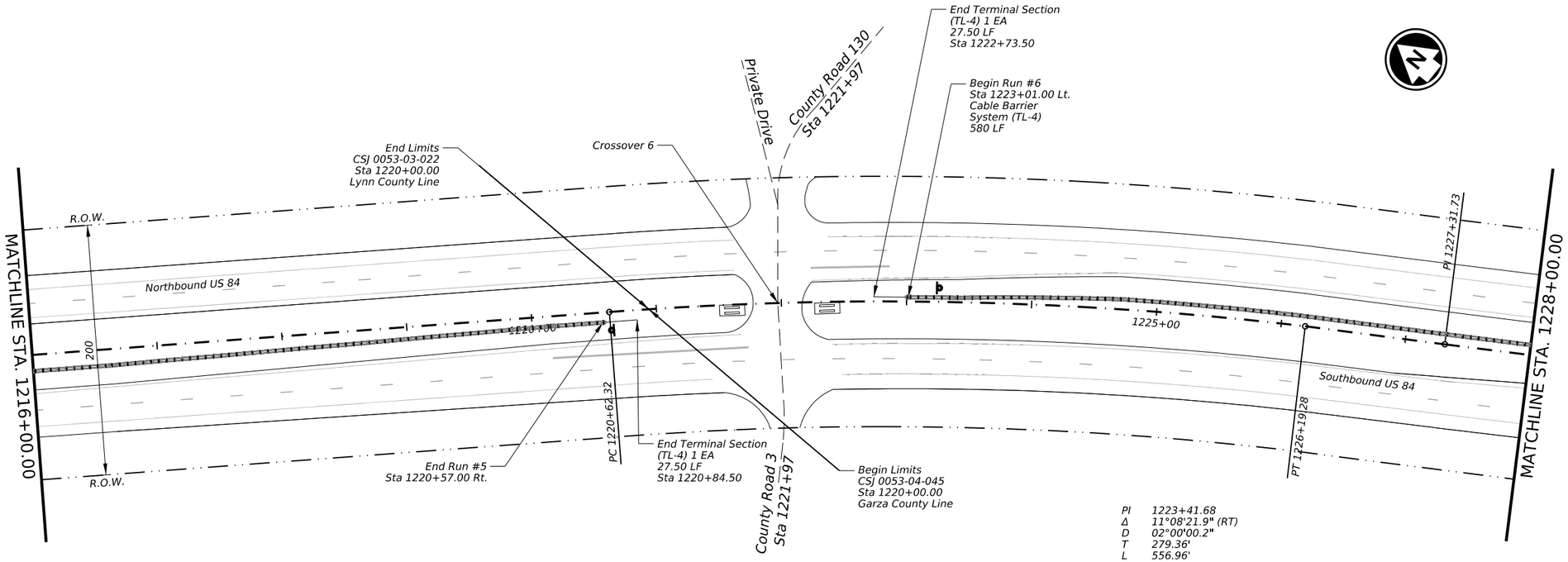
US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		46

DATE: 1/30/2024 1:32:59 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn



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US 84, ETC.

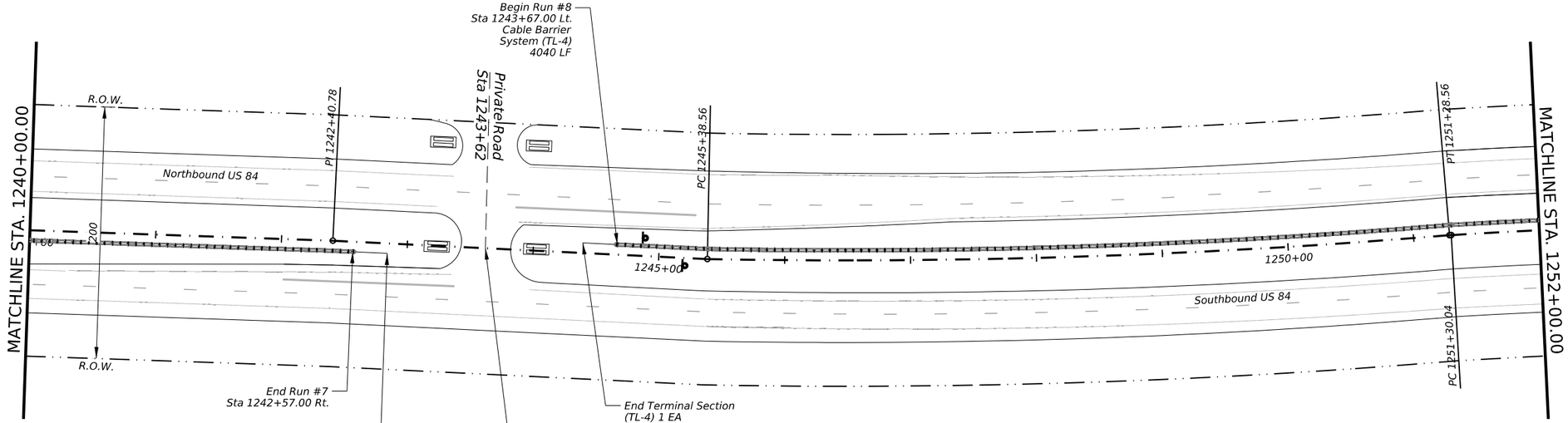
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 10 OF 43

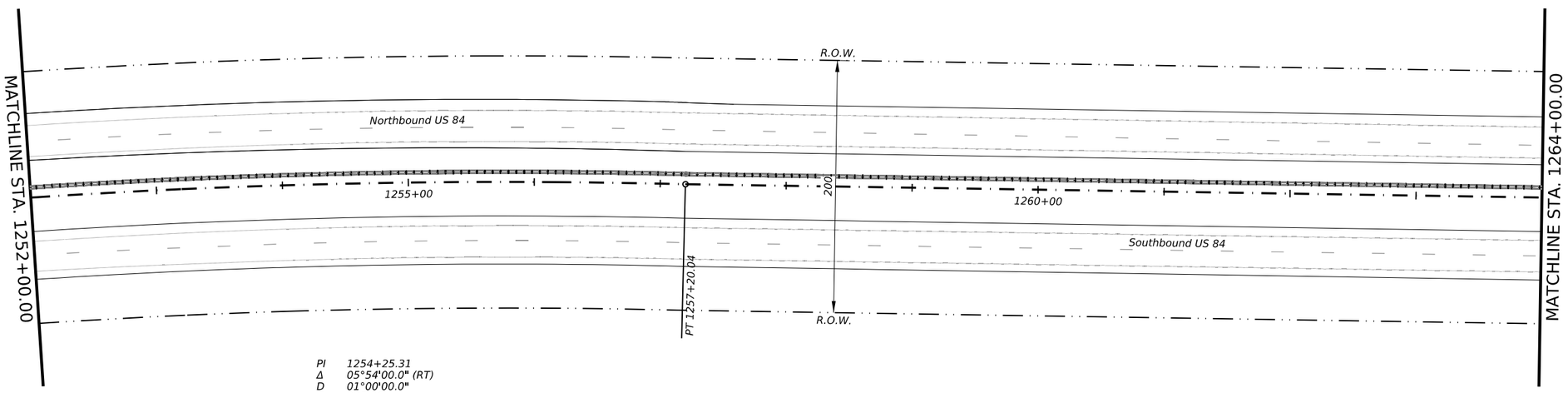
CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		47

DATE: 1/30/2024 1:33:00 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn

CK DW CK DW



PI	1248+33.83
Δ	05°54'00.0" (LT)
D	01°00'00.0"
T	295.26'
L	590.00'
R	5729.58'
PC	1245+38.56
PT	1251+28.56



PI	1254+25.31
Δ	05°54'00.0" (RT)
D	01°00'00.0"
T	295.26'
L	590.00'
R	5729.58'
PC	1251+30.04
PT	1257+20.04

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US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 11 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		48

DATE: 1/30/2024 1:33:02 PM
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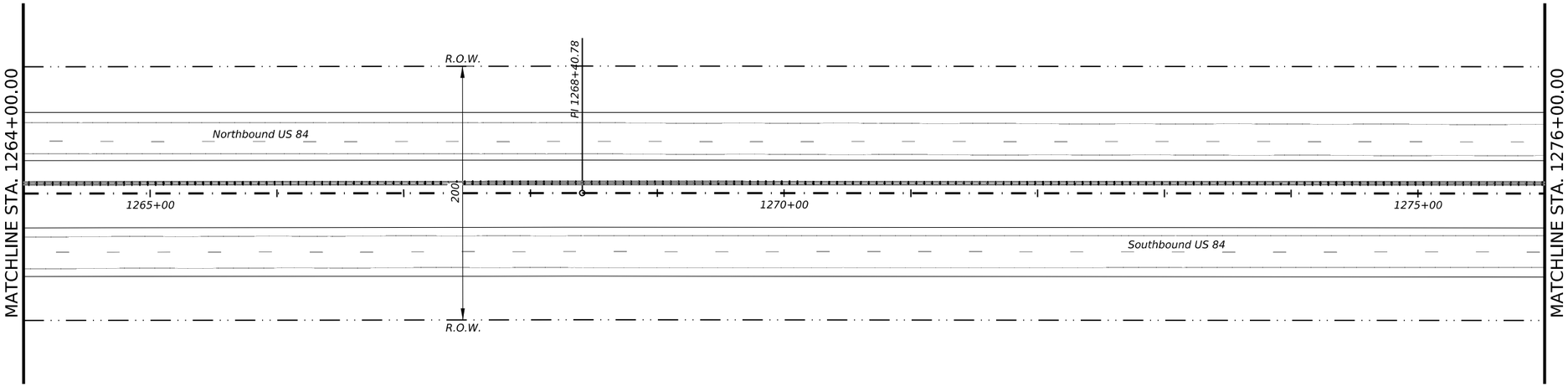

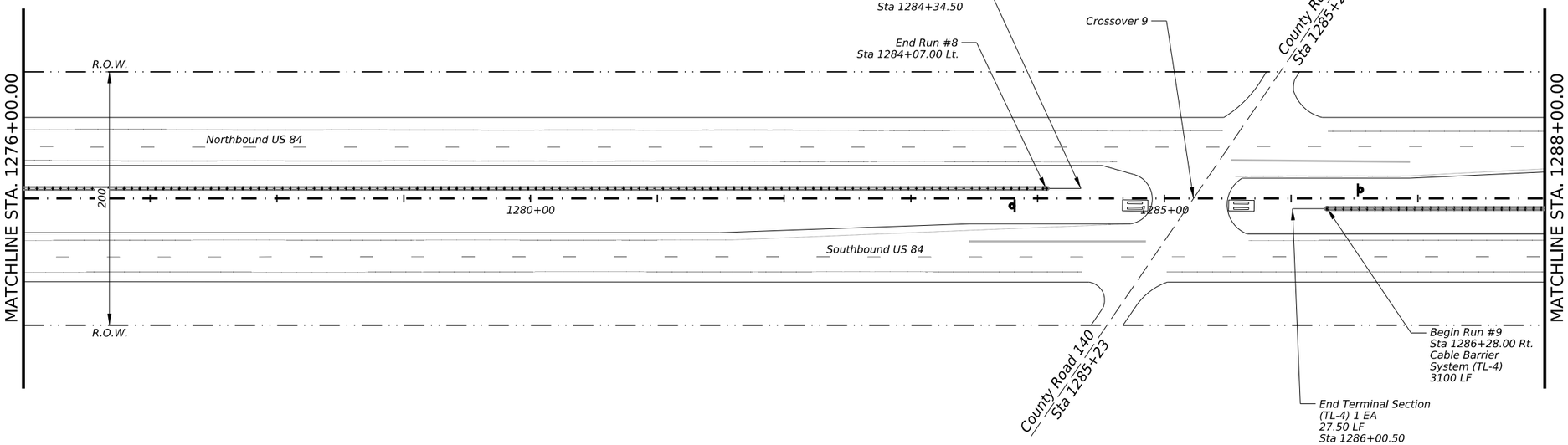

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US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		49

DATE: 1/30/2024 1:33:03 PM
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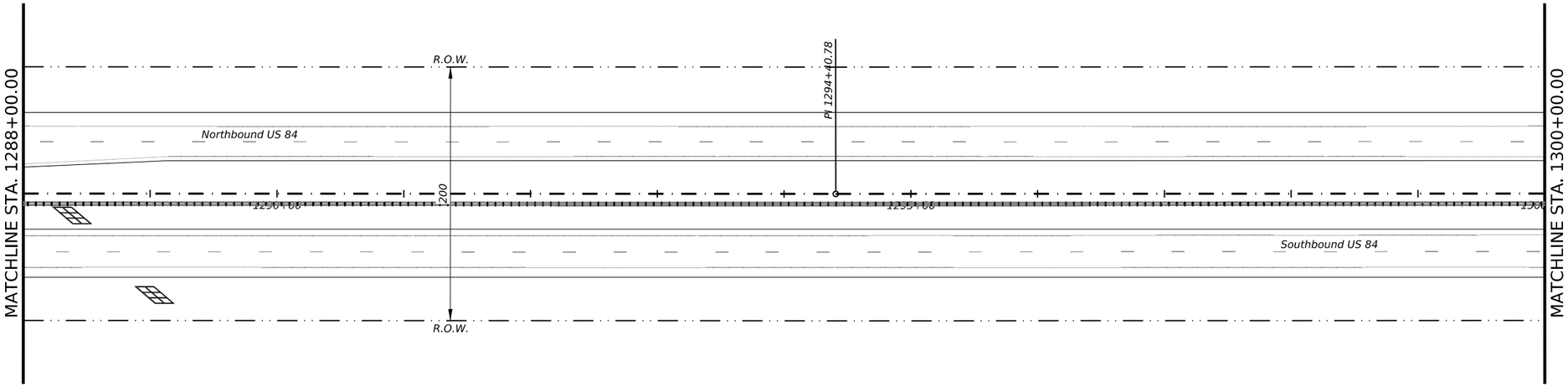

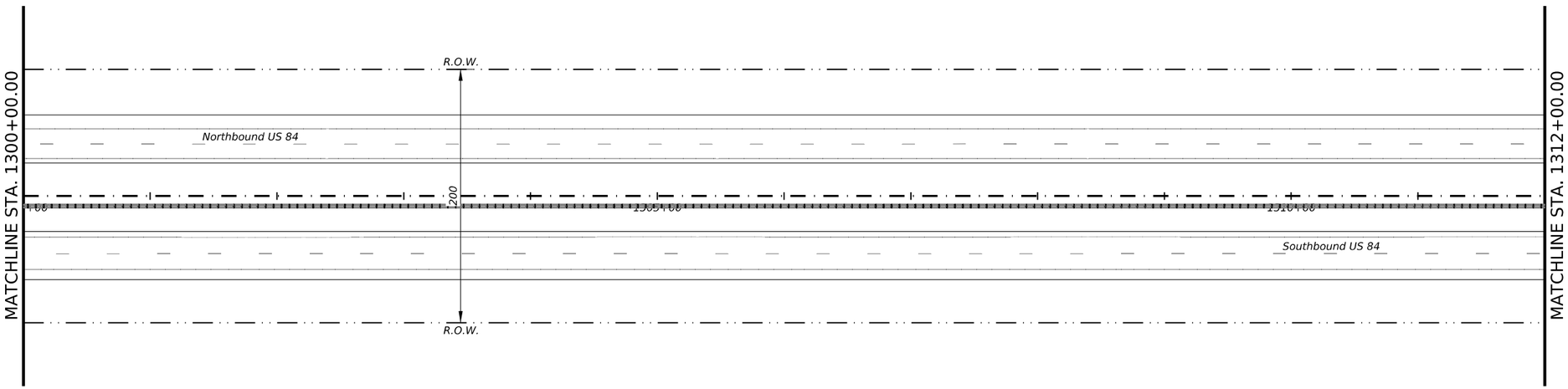

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US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 13 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		50

DATE: 1/30/2024 1:33:04 PM
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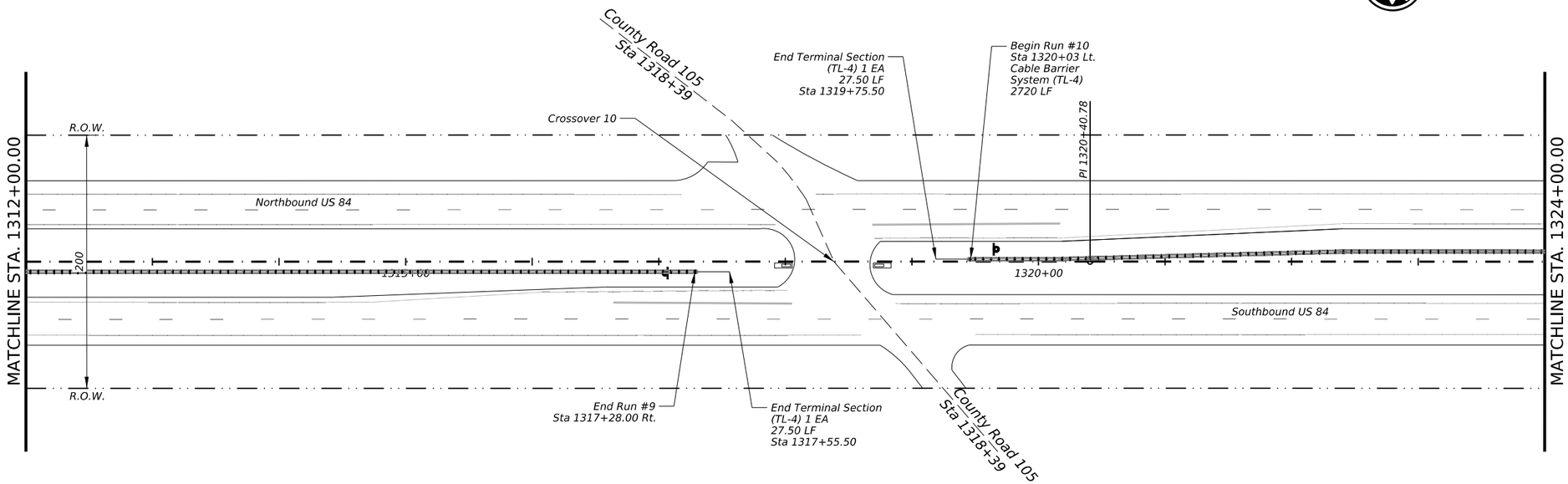
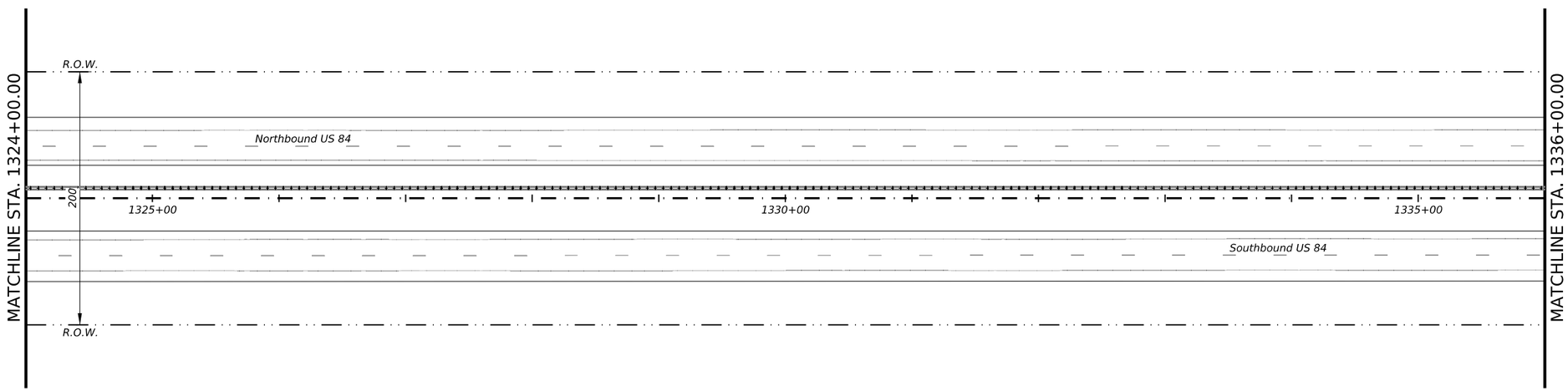
CK | DW | CK | DW





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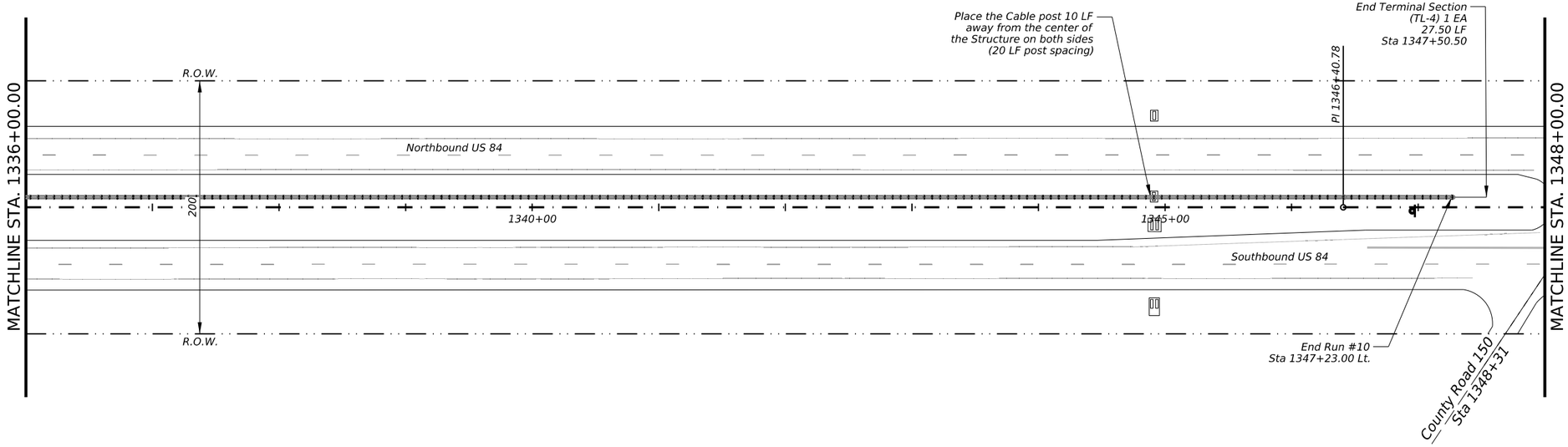
US 84, ETC.

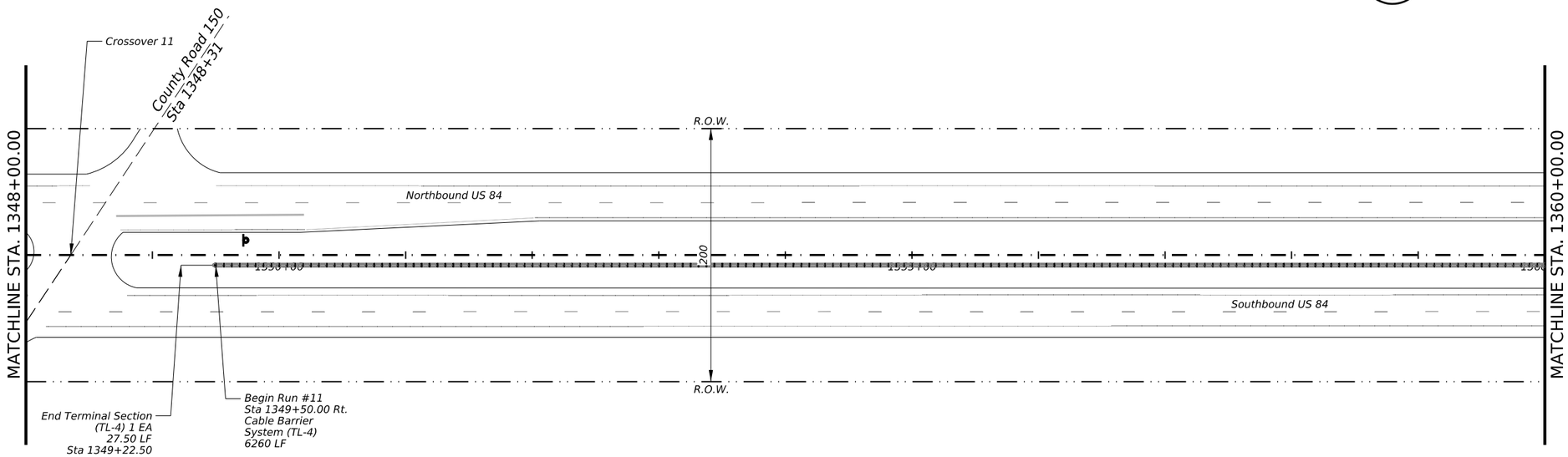
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 14 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		51

DATE: 1/30/2024 1:33:05 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011136/4 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





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US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		52

DATE: 1/30/2024 1:33:07 PM
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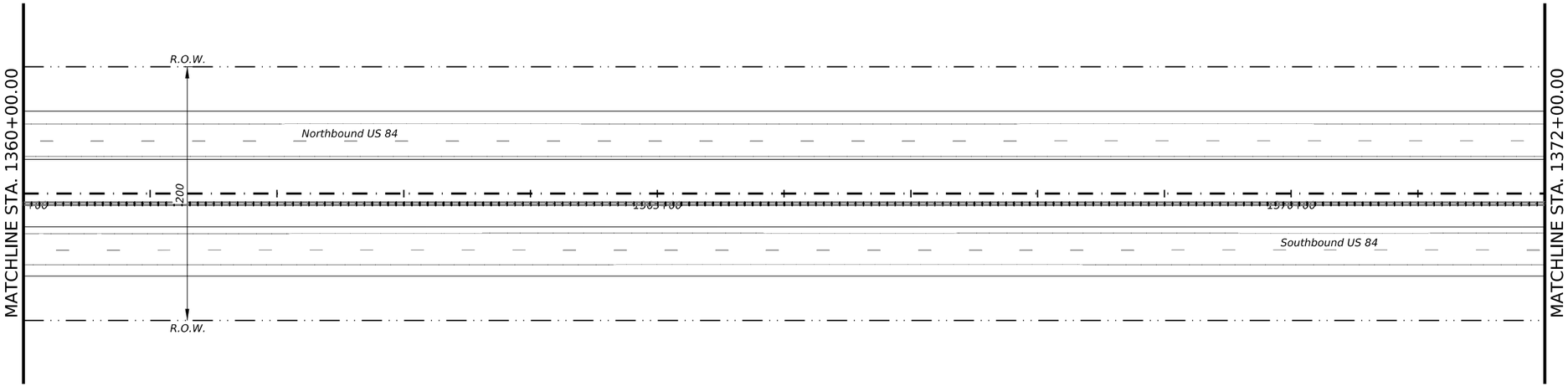

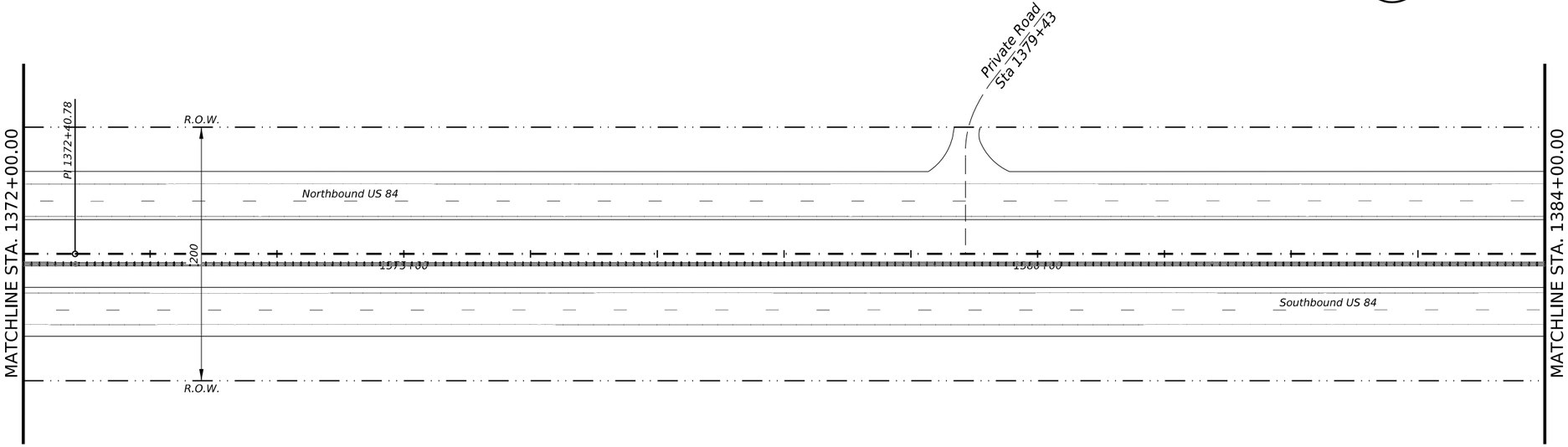

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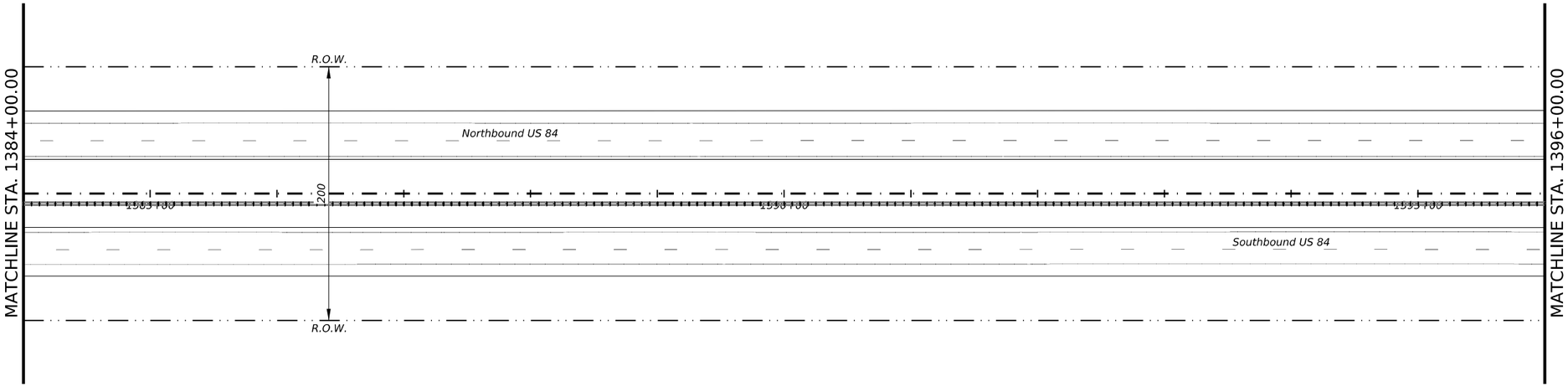
US 84, ETC.

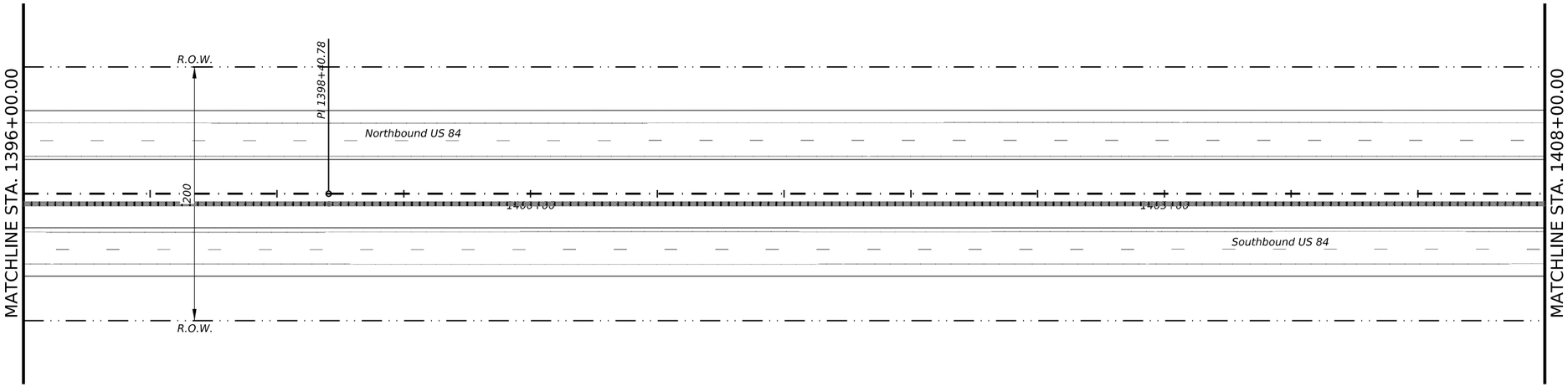
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 16 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		53

DATE: 1/30/2024 1:33:08 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011136/4 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





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Shelley C. Harris, P.E.
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Texas Department of Transportation

US 84, ETC.

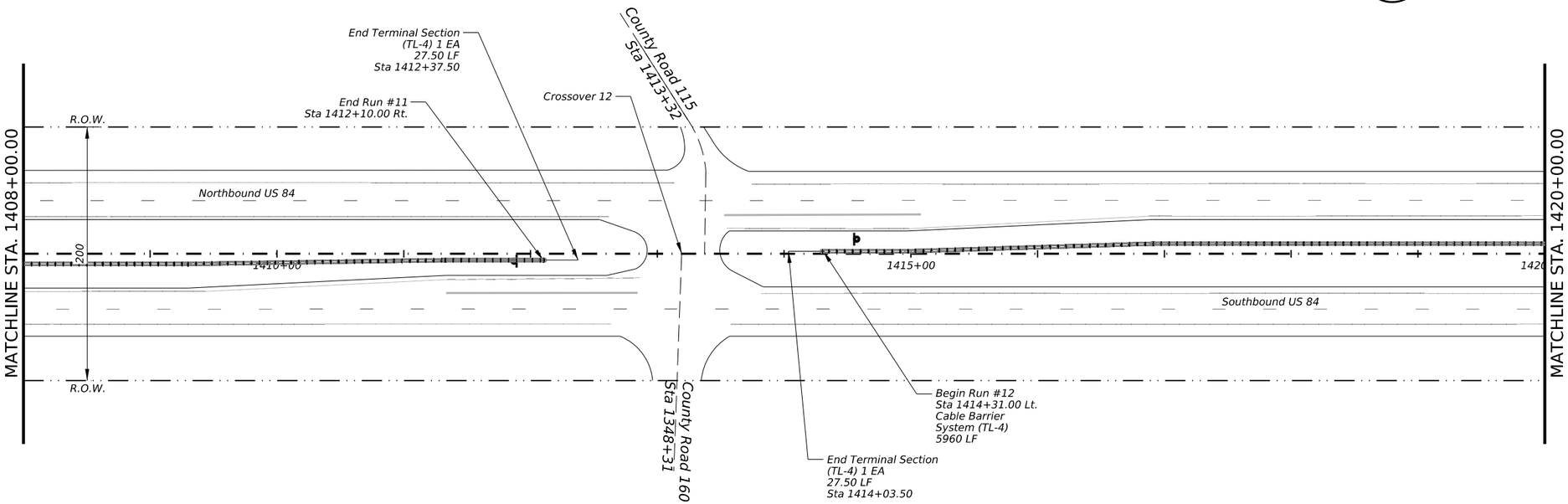
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

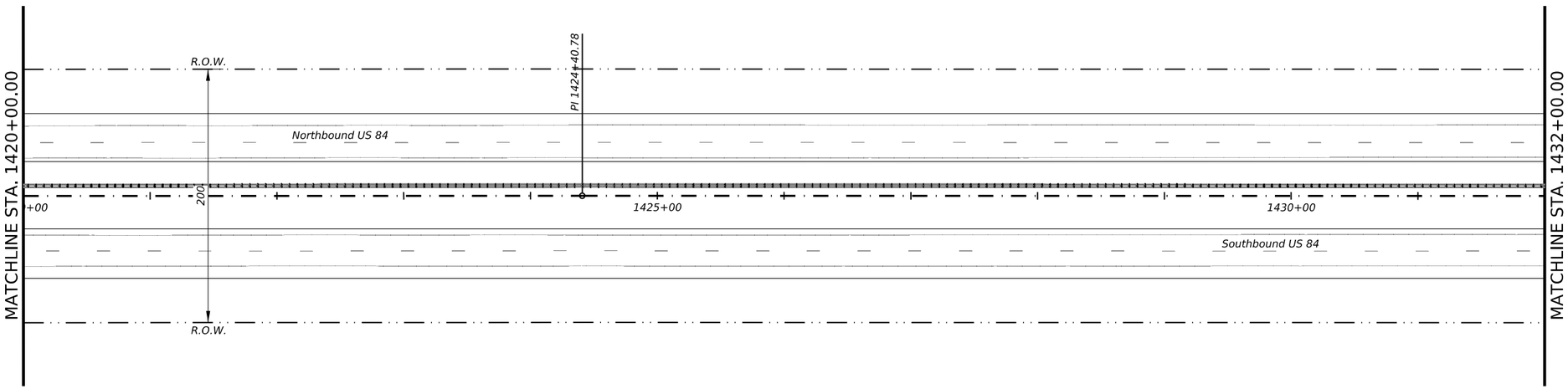
SHEET 17 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		54

DATE: 1/30/2024 1:33:09 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn

CK DW CK DW





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Texas Department of Transportation

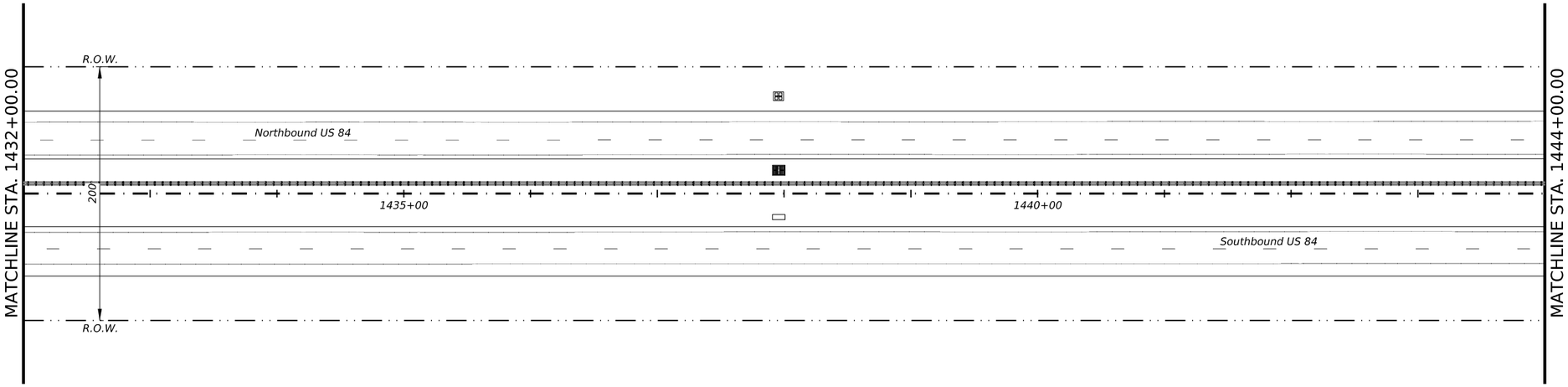
US 84, ETC.

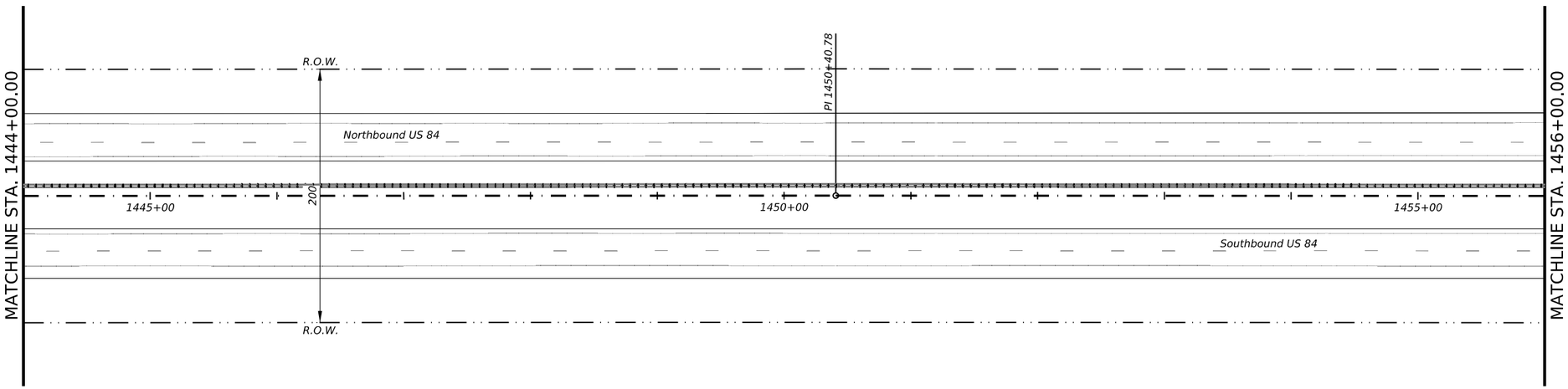
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 18 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		55

DATE: 1/30/2024 1:33:10 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011136/4 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





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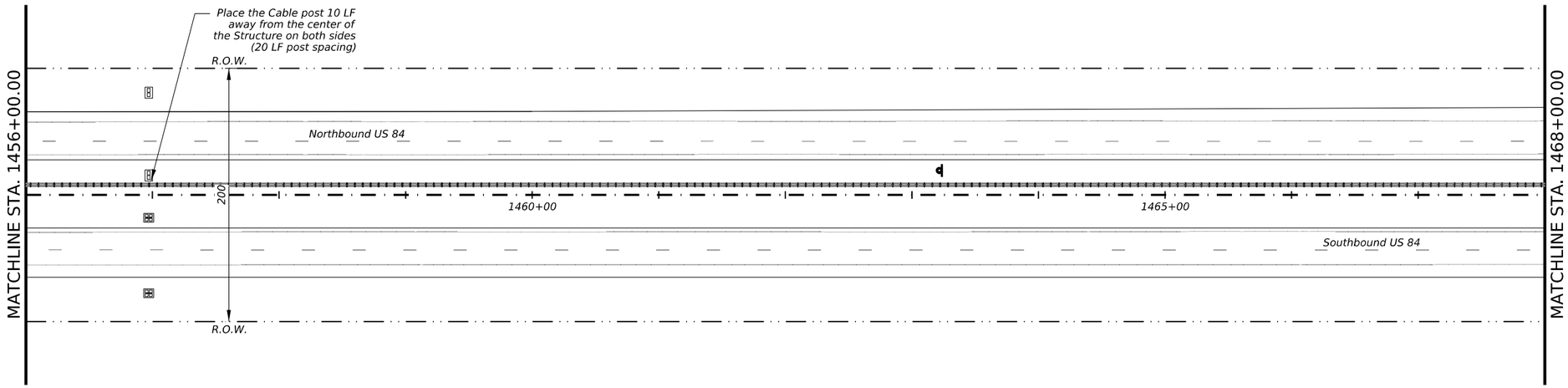
Texas Department of Transportation

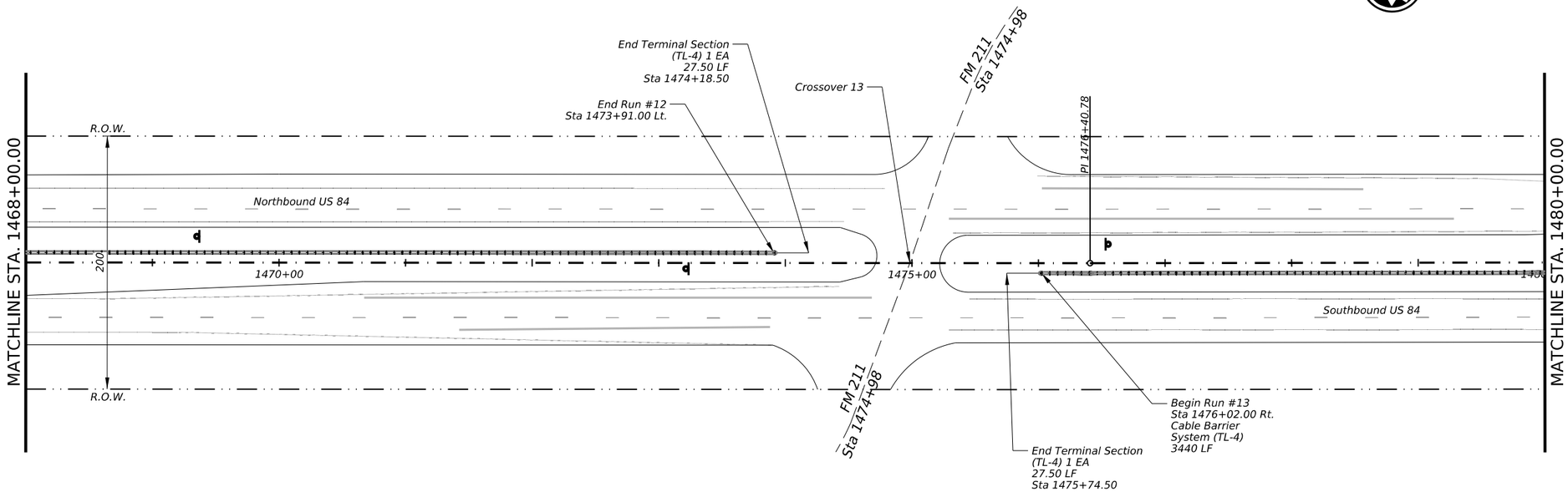
US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		56

DATE: 1/30/2024 1:33:11 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011136/4 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 20 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		57

DATE: 1/30/2024 1:33:14 PM
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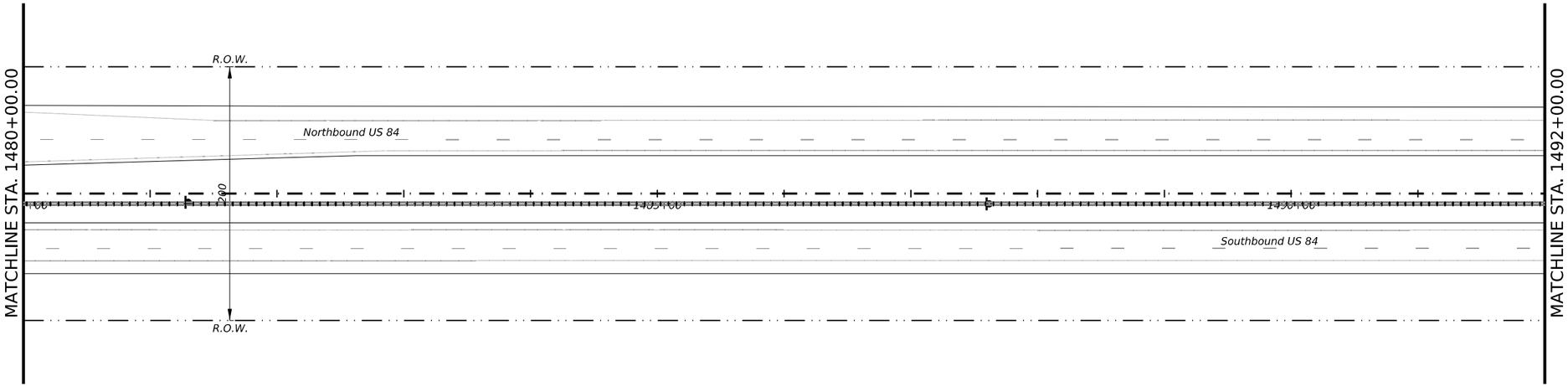

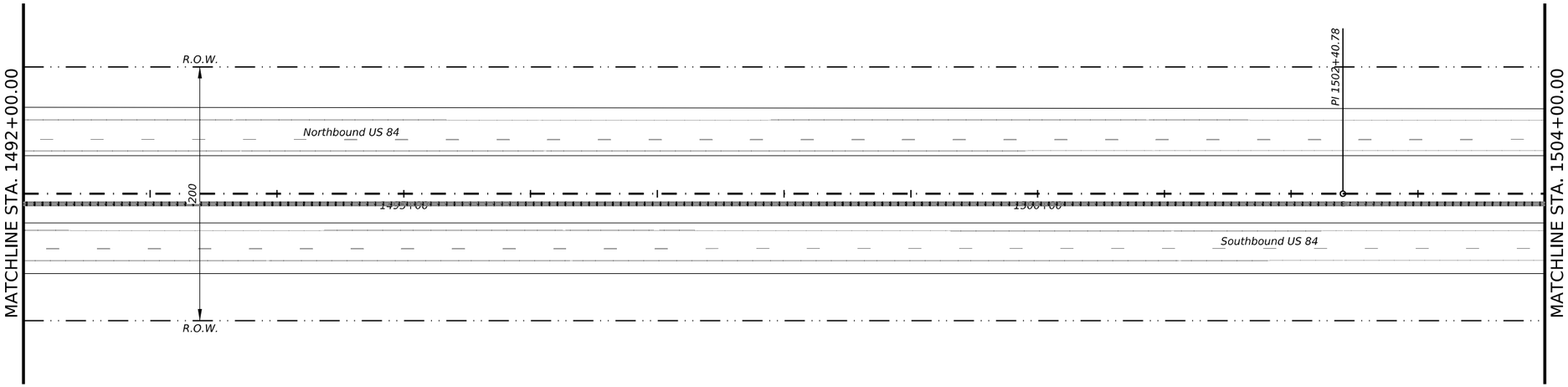

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1/26/2024

Texas Department of Transportation

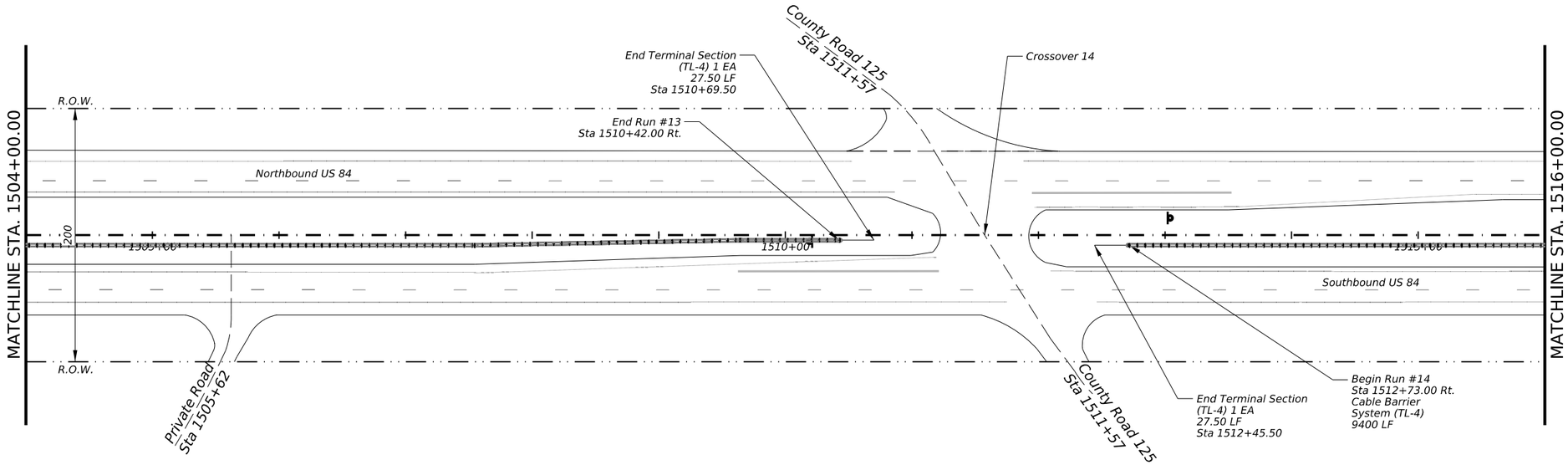
US 84, ETC.

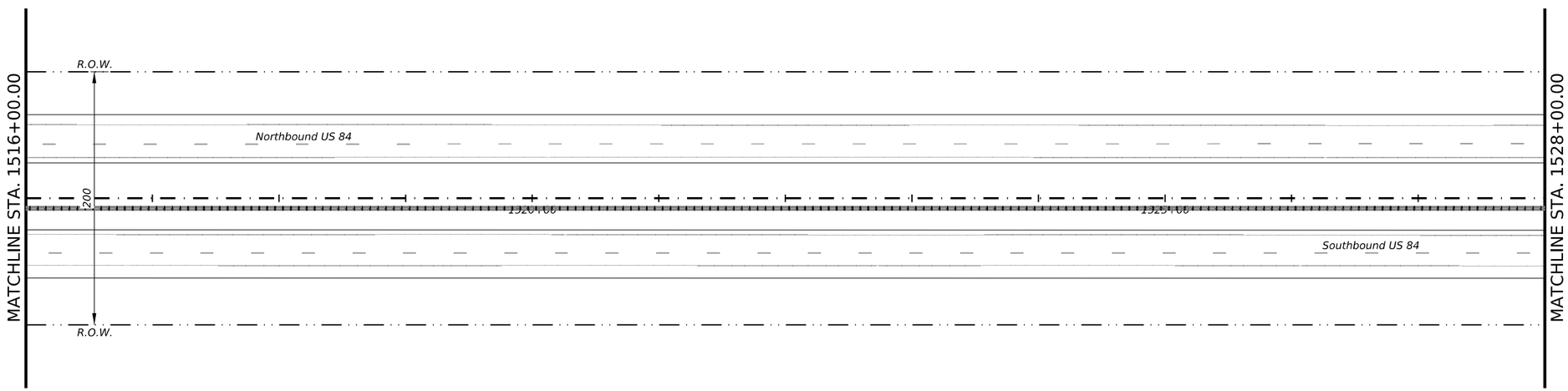
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 21 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		58

DATE: 1/30/2024 1:33:13 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011136/4 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





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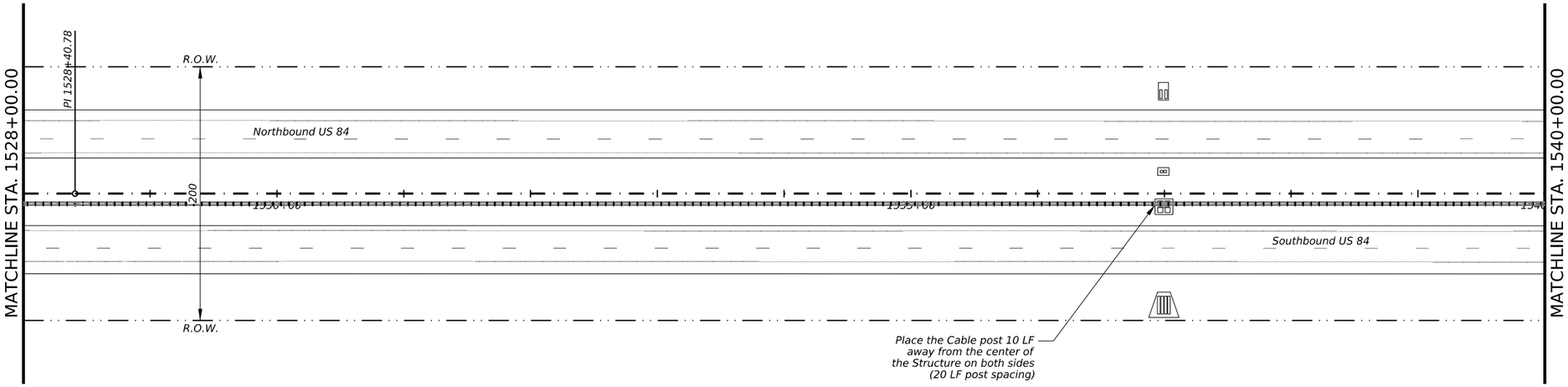
US 84, ETC.

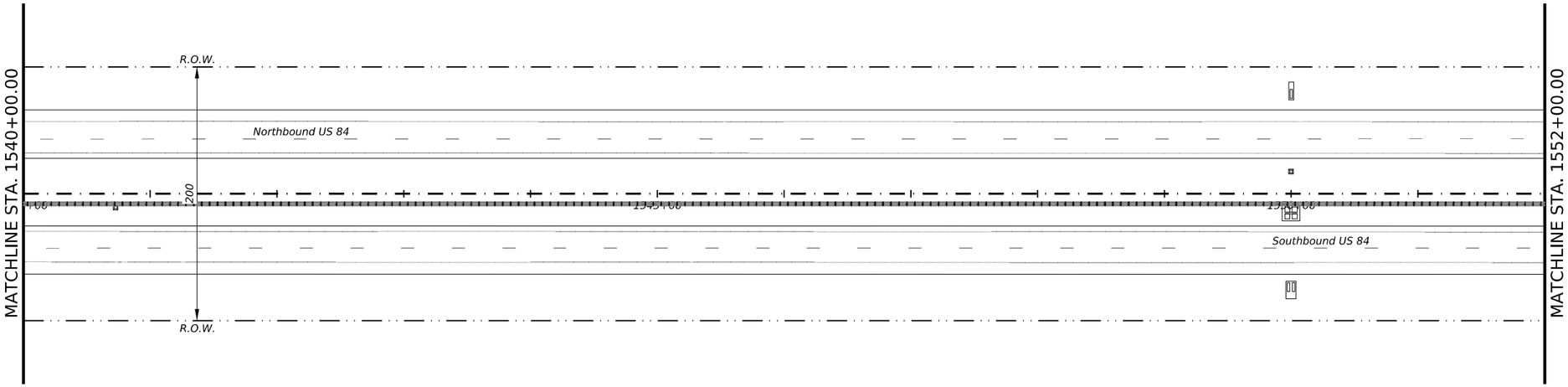
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 22 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		59

DATE: 1/30/2024 1:33:15 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011136/4 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





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US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 23 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		60

DATE: 1/30/2024 1:33:16 PM
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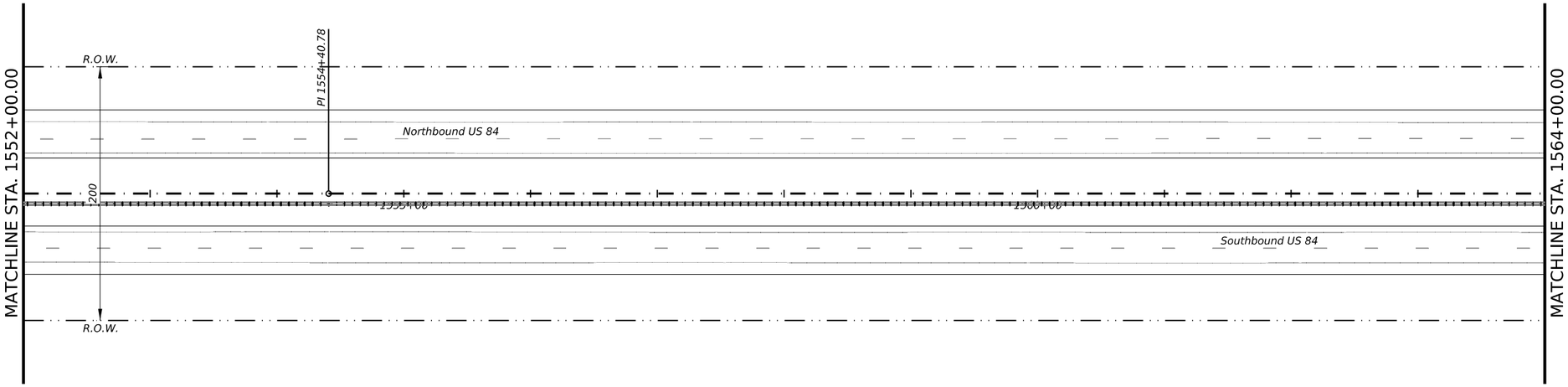

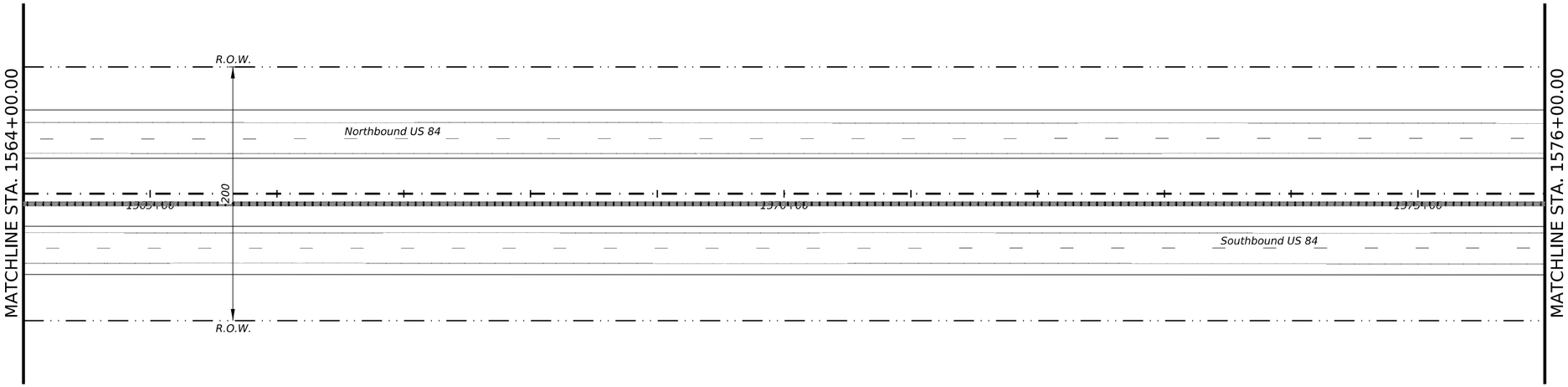

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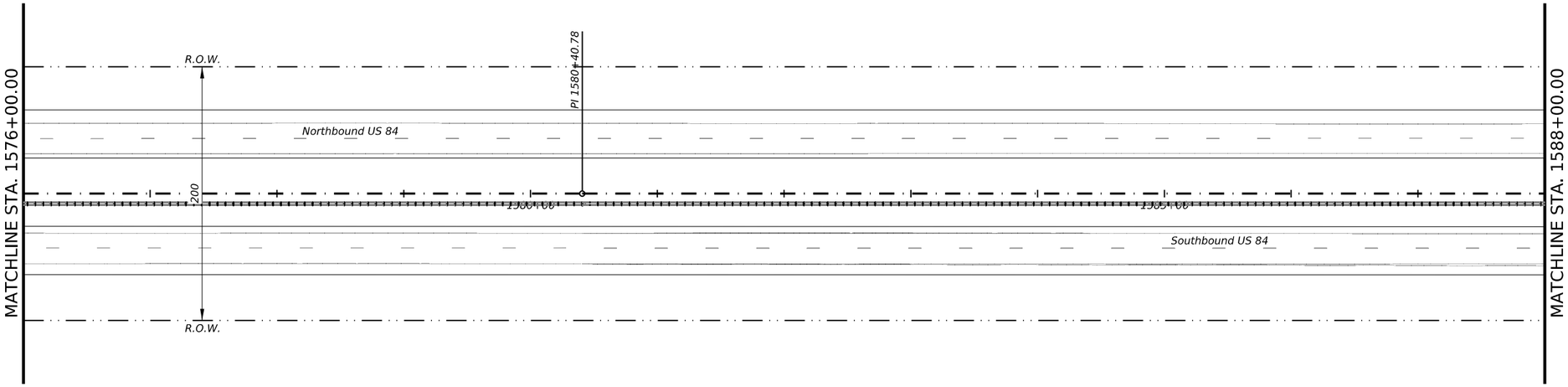
Texas Department of Transportation

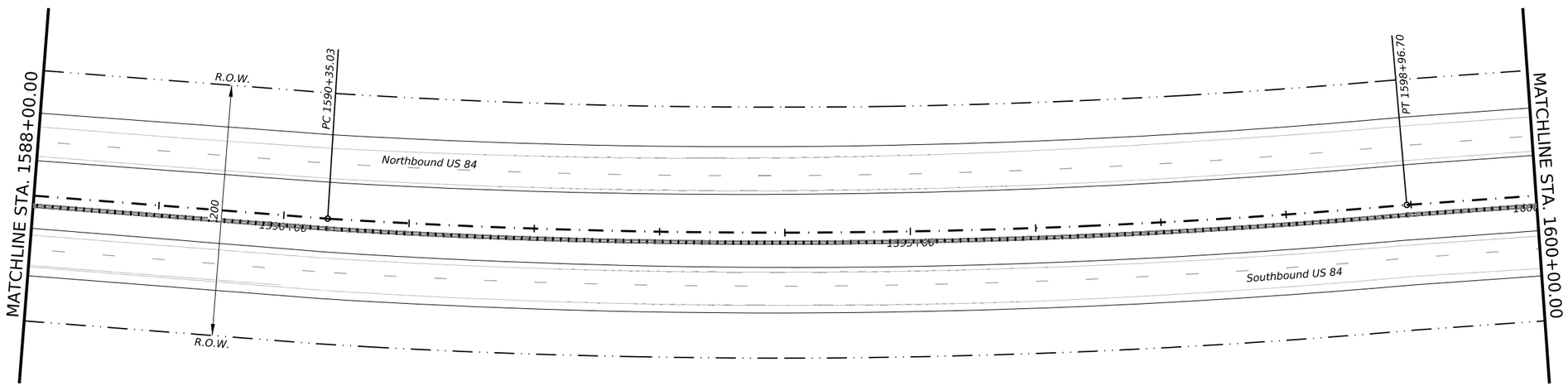
US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		61

DATE: 1/30/2024 1:33:18 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





PI	1594+66.68
Δ	08°37'00.1" (LT)
D	01°00'00.0"
T	431.65'
L	861.67'
R	5729.58'
PC	1590+35.03
PT	1598+96.70

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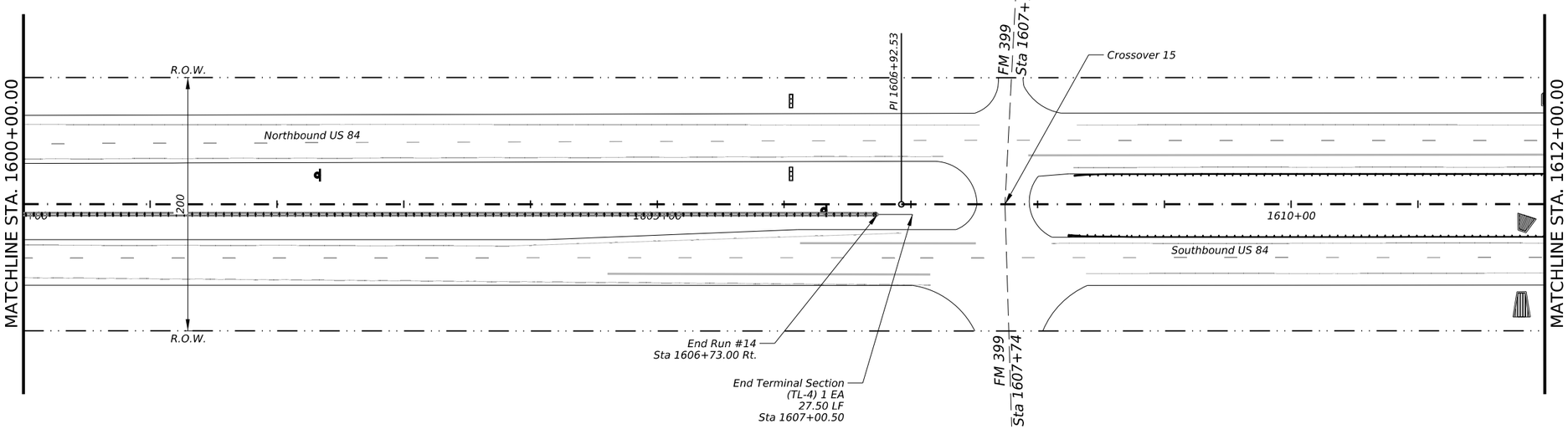
US 84, ETC.

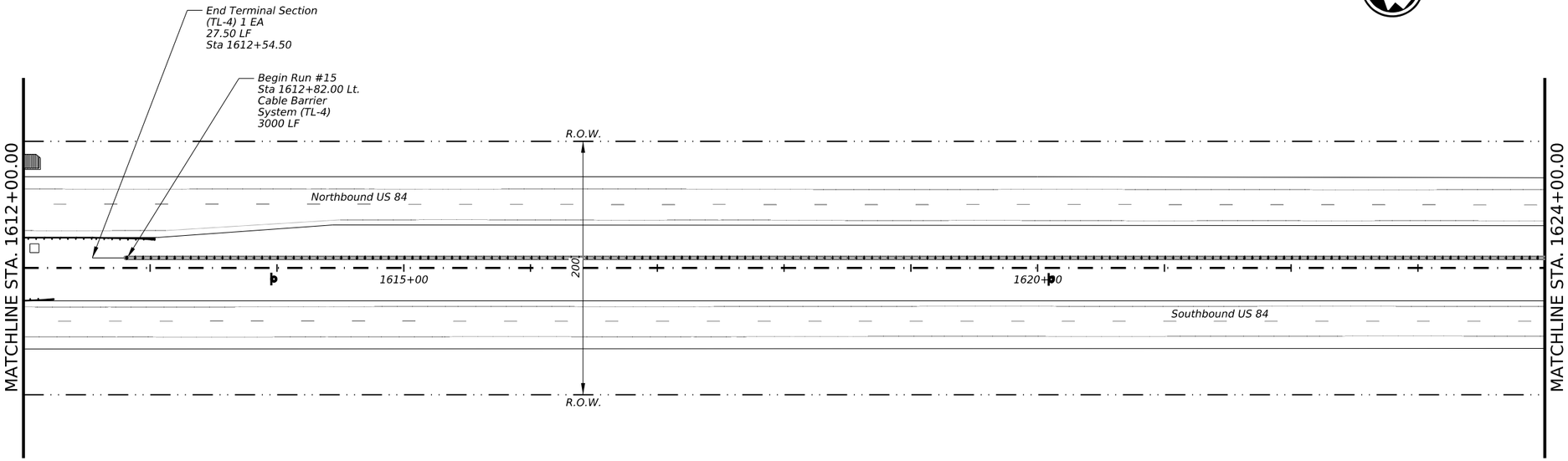
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 25 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		62

DATE: 1/30/2024 1:33:19 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





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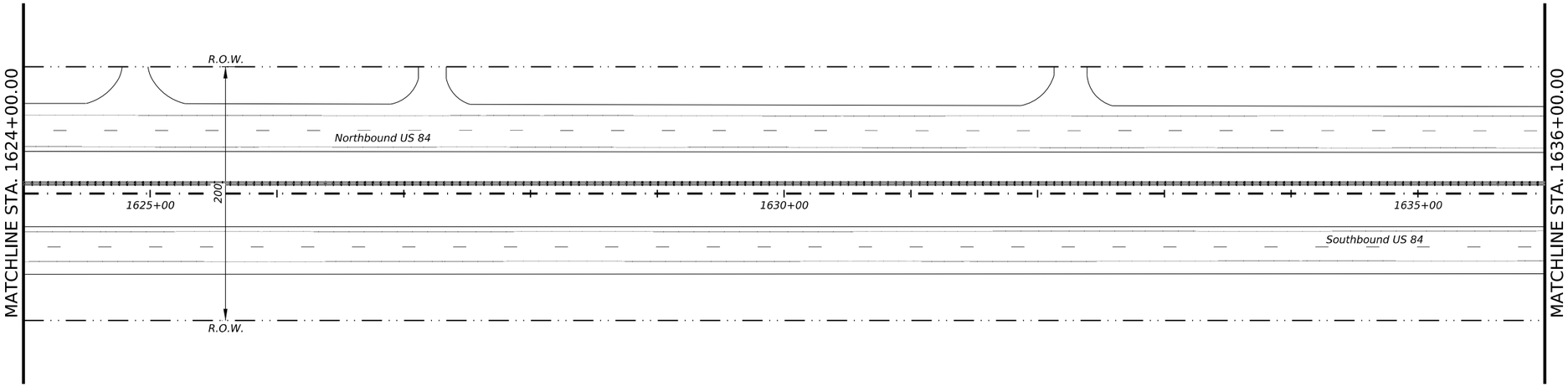
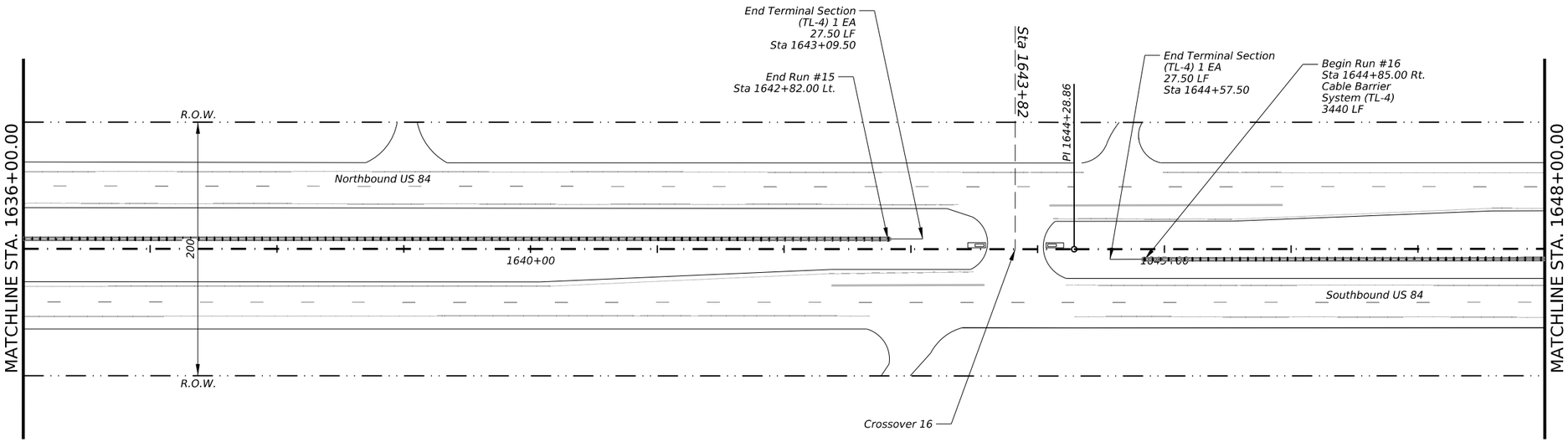
US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		63

DATE: 1/30/2024 1:33:20 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





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Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 27 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		64

DATE: 1/30/2024 1:33:22 PM
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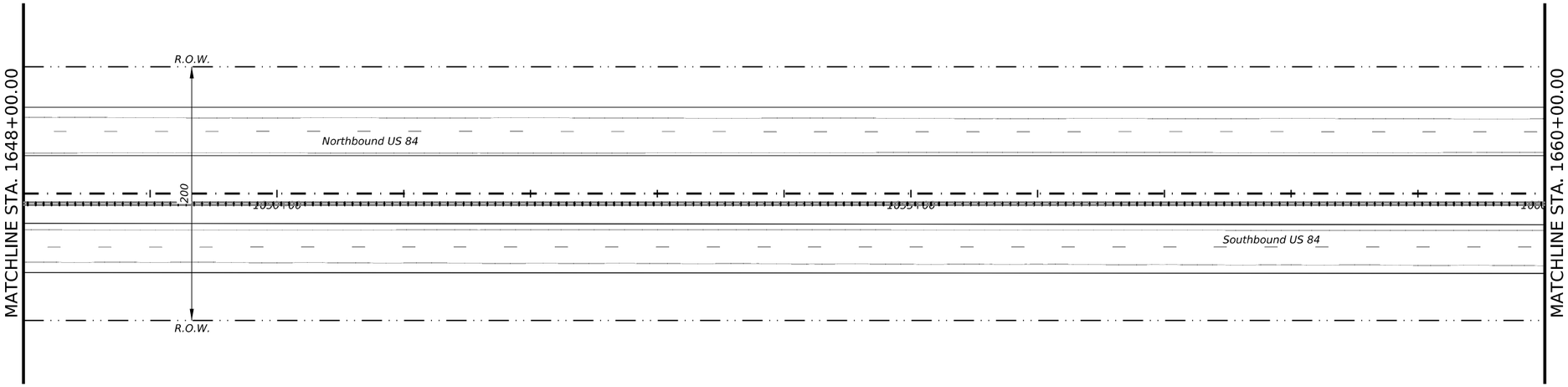

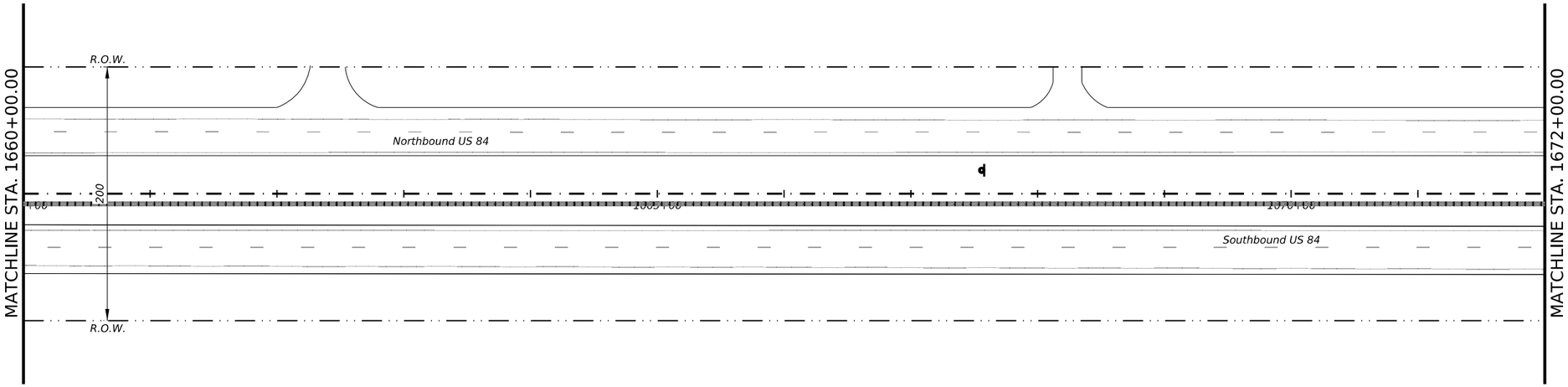

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US 84, ETC.

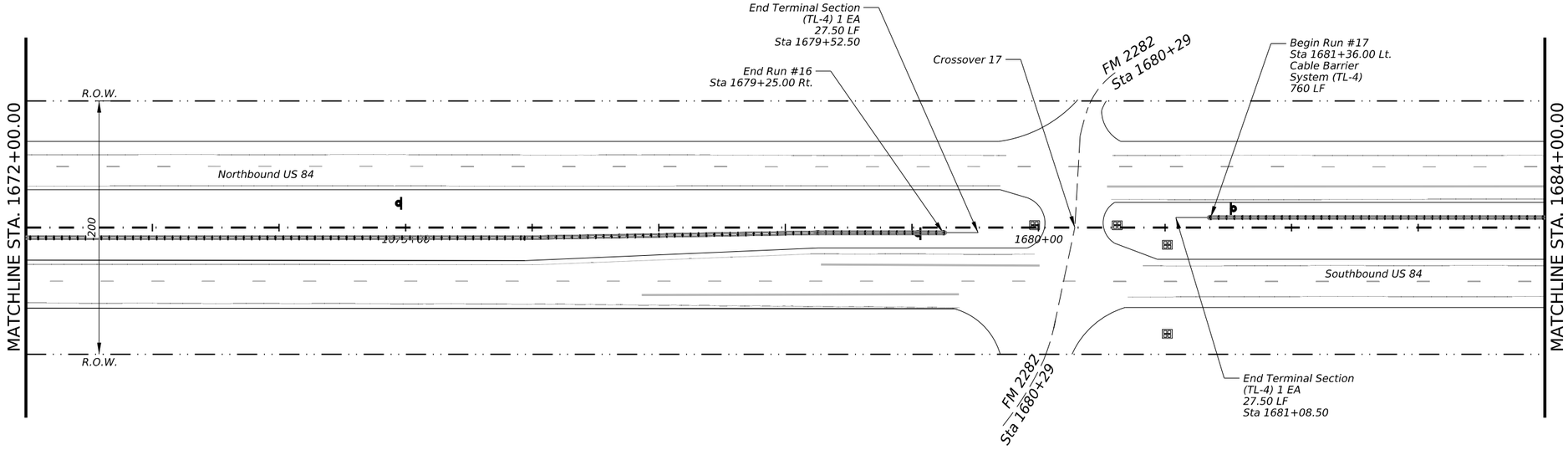
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

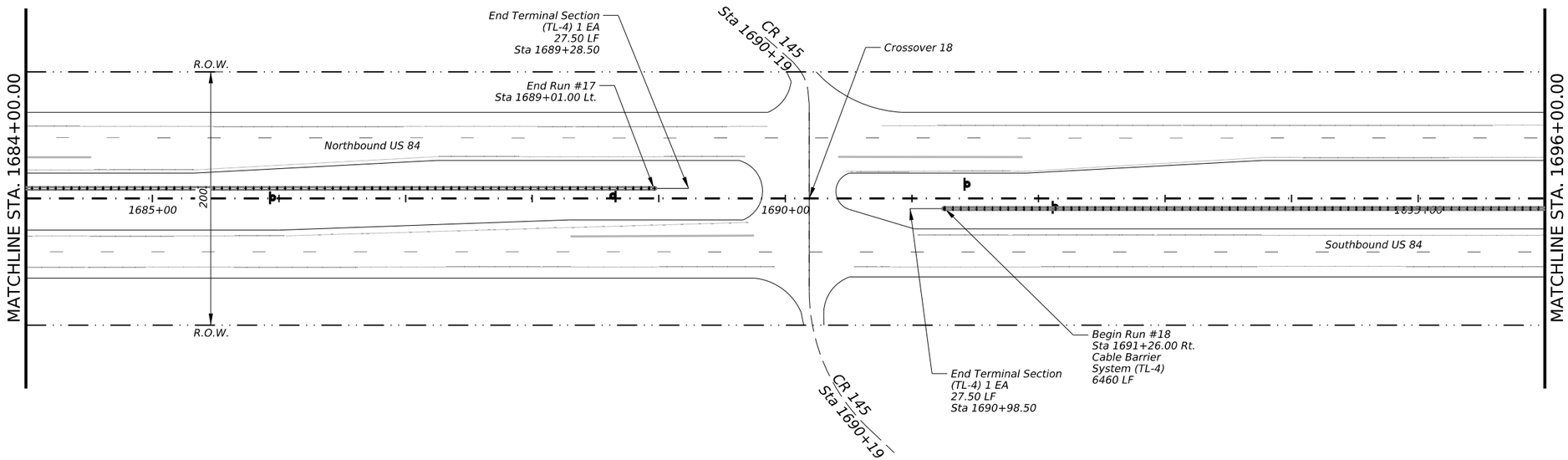
SHEET 28 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		65

DATE: 1/30/2024 1:33:23 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn

CK DW CK DW





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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 29 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		66

DATE: 1/30/2024 1:33:24 PM
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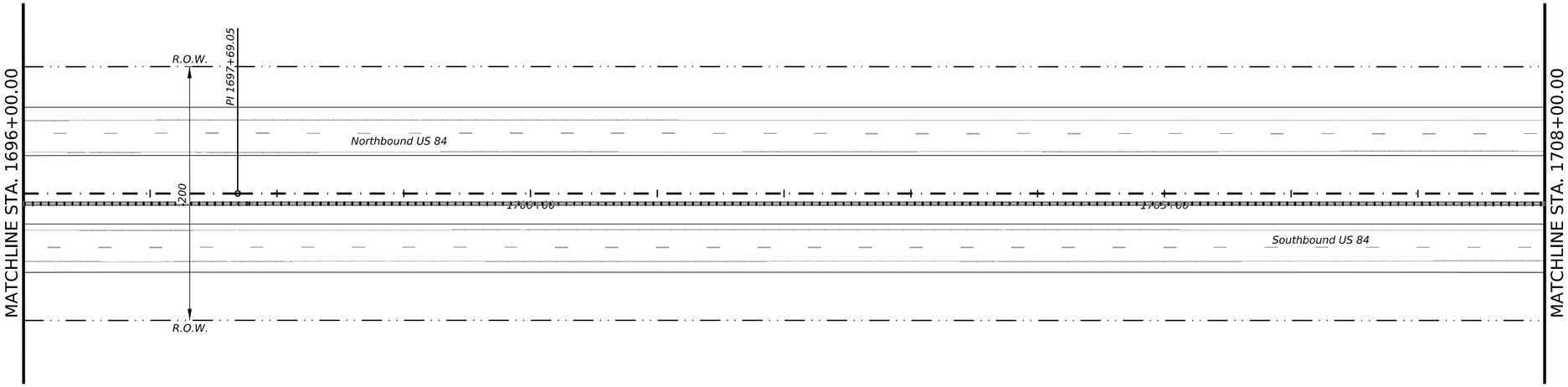

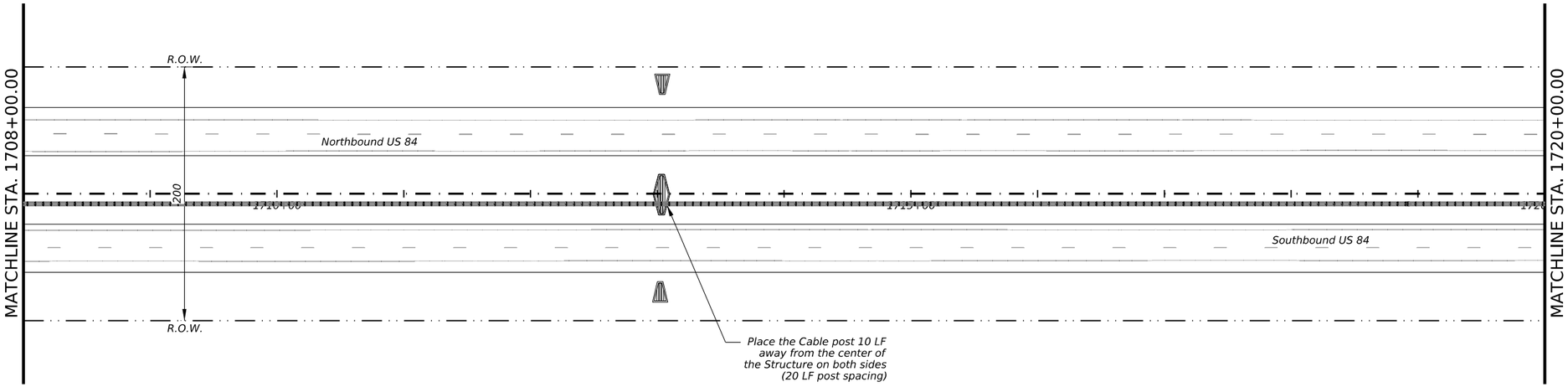

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Texas Department of Transportation

US 84, ETC.

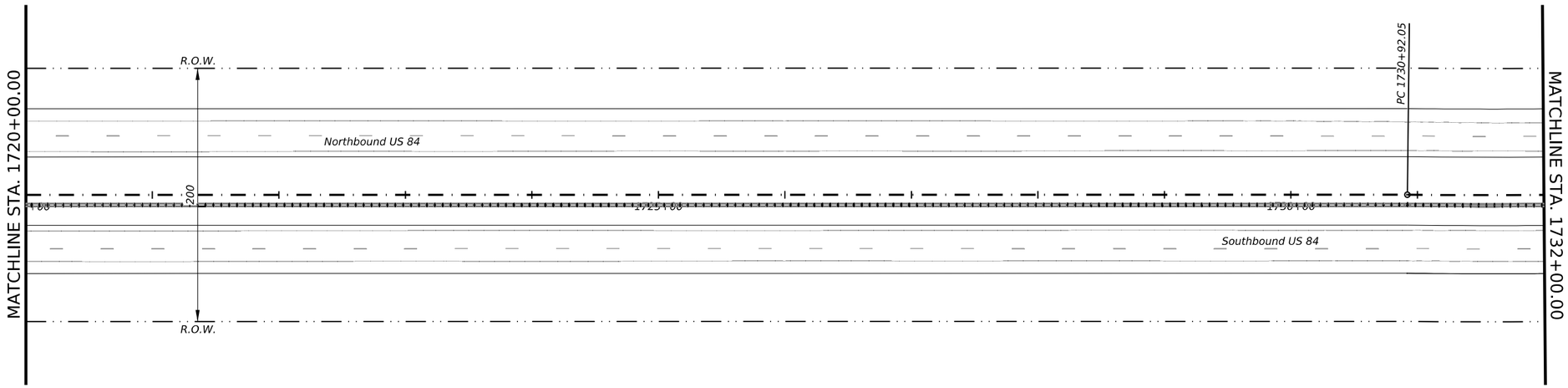
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

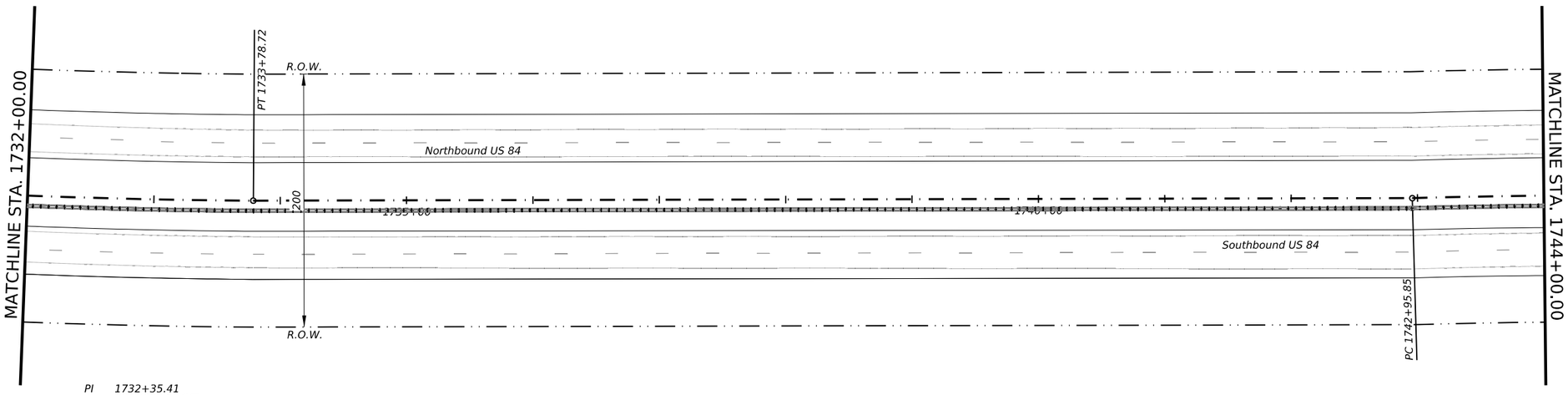
SHEET 30 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		67

DATE: 1/30/2024 1:33:25 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn

CK: DW: CK: DW:





PI	1732+35.41
Δ	02°52'00.1" (LT)
D	01°00'00.0"
T	143.36'
L	286.67'
R	5729.58'
PC	1730+92.05
PT	1733+78.72

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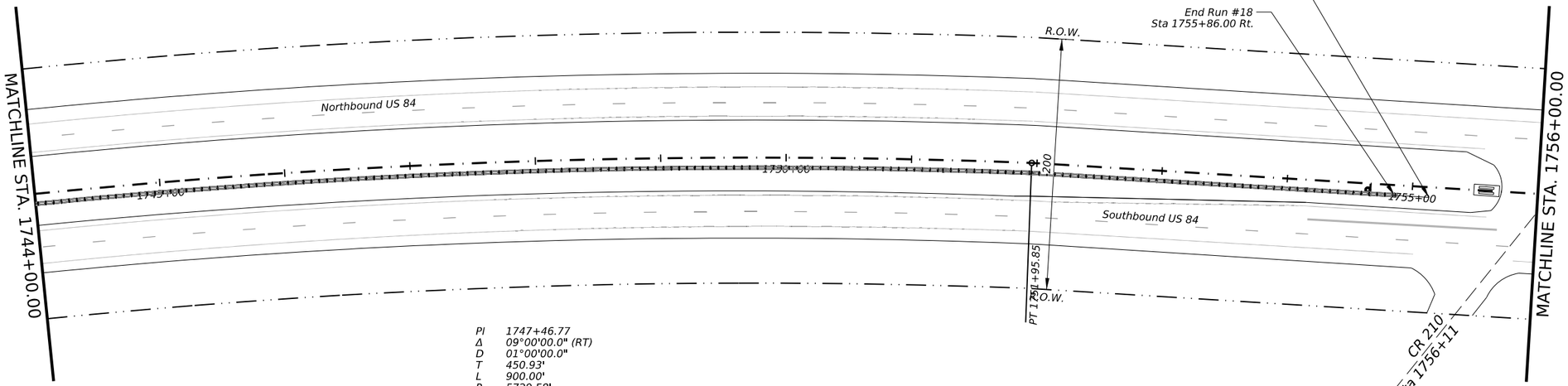
US 84, ETC.

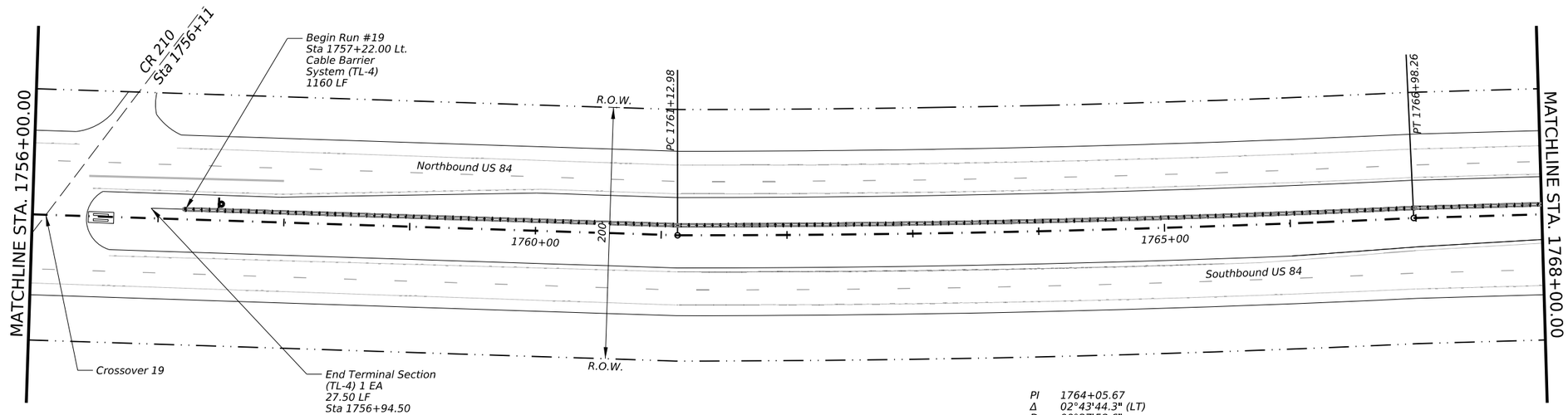
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		68

DATE: 1/30/2024 1:33:27 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn



PI 1747+46.77
Δ 09°00'00.0" (RT)
D 01°00'00.0"
T 450.93'
L 900.00'
R 5729.58'
PC 1742+95.85
PT 1751+95.85



PI 1764+05.67
Δ 02°43'44.3" (LT)
D 00°27'58.6"
T 292.70'
L 585.28'
R 12288.15'
PC 1761+12.98
PT 1766+98.26

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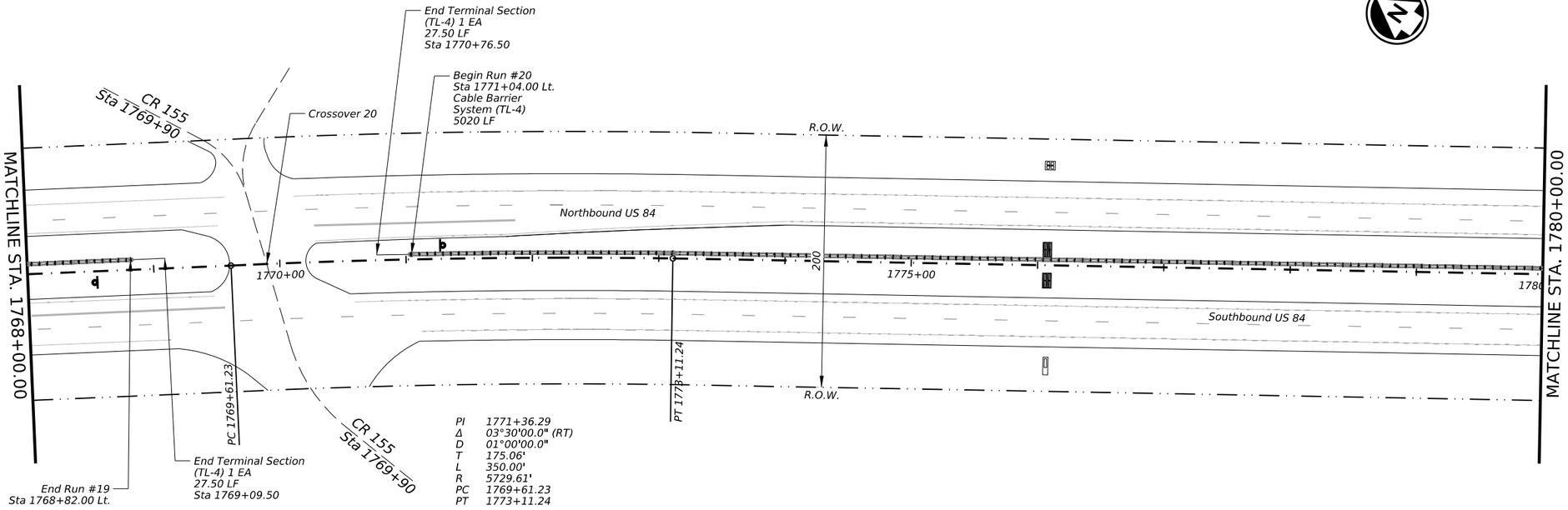
US 84, ETC.

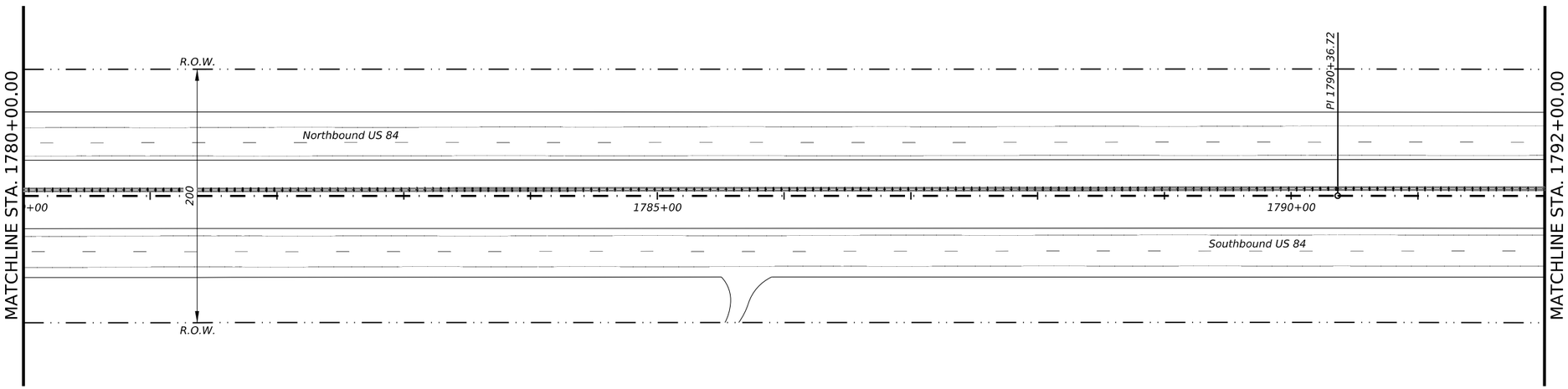
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 32 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		69

DATE: 1/30/2024 1:33:28 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 33 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		70

DATE: 1/30/2024 1:33:30 PM
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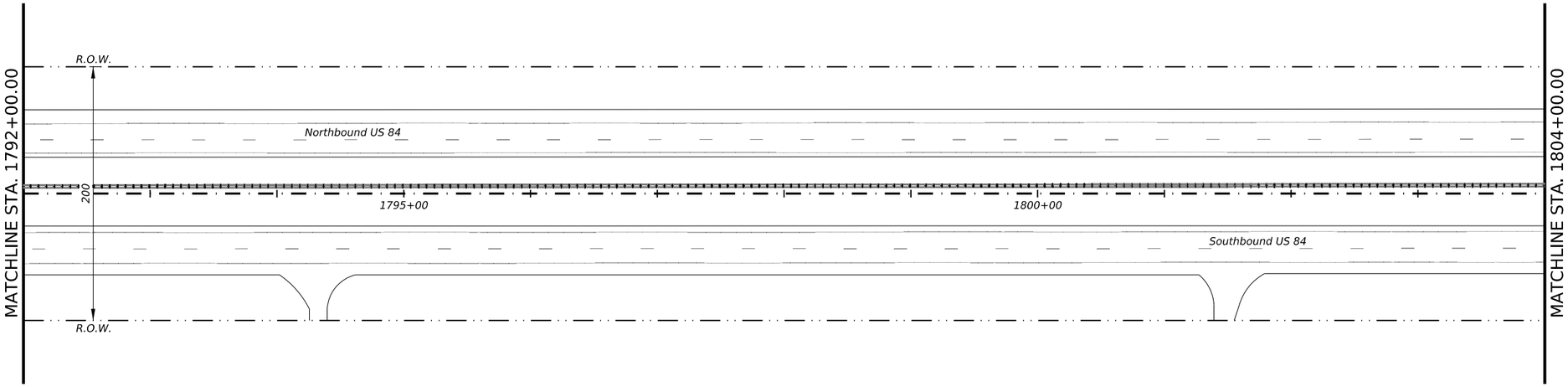

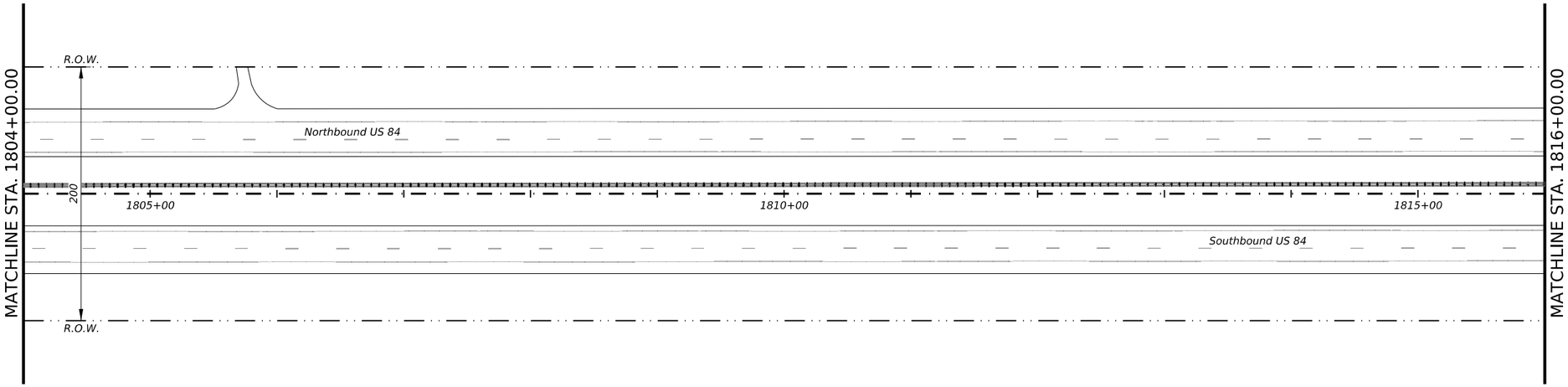

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Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 34 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		71

DATE: 1/30/2024 1:33:31 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011136/4 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn

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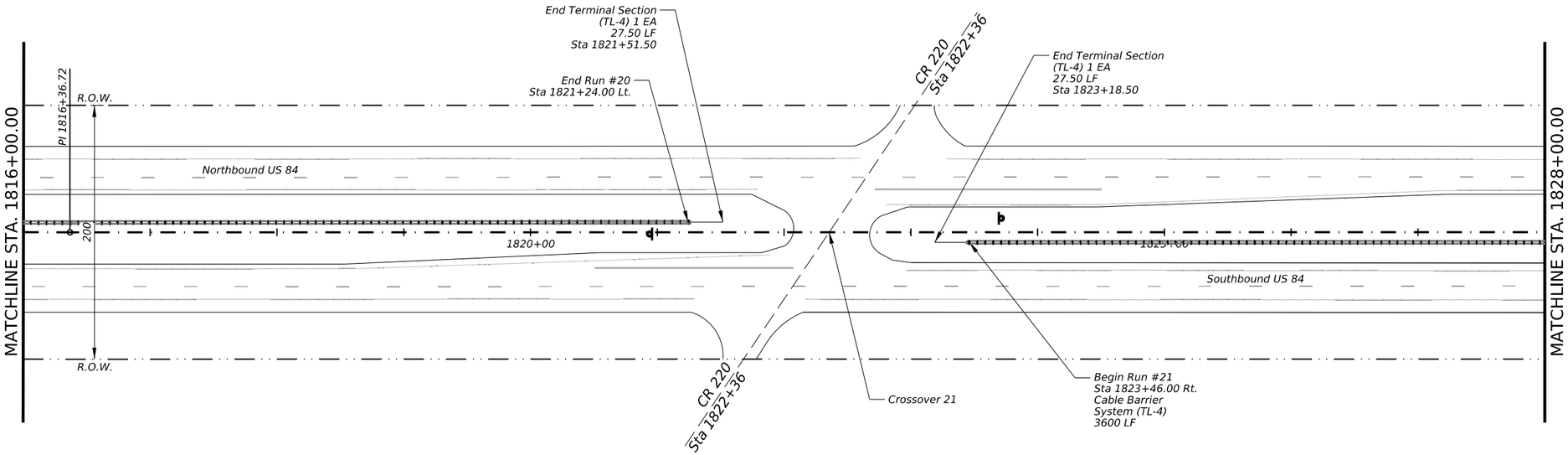

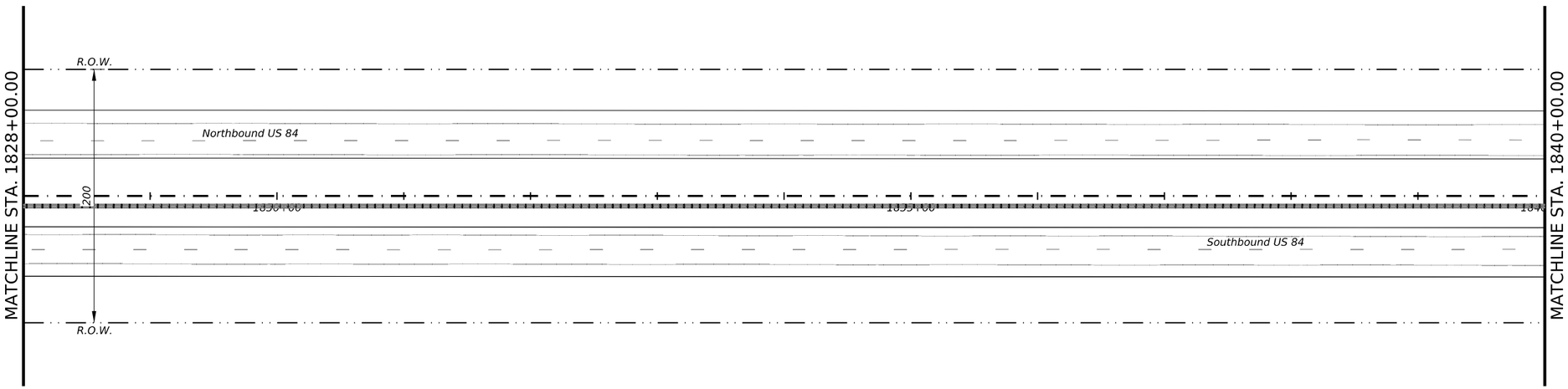

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Texas Department of Transportation

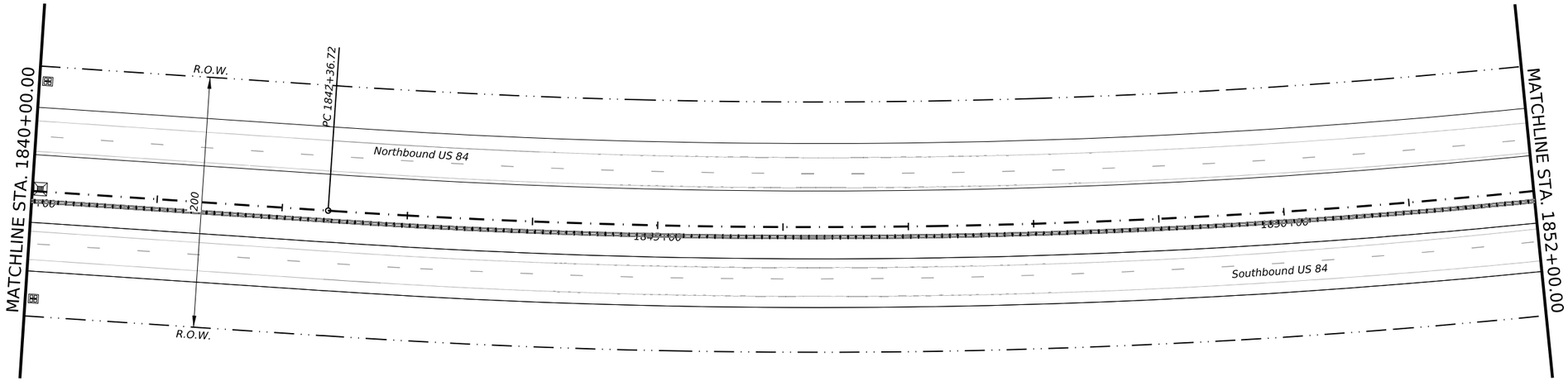
US 84, ETC.

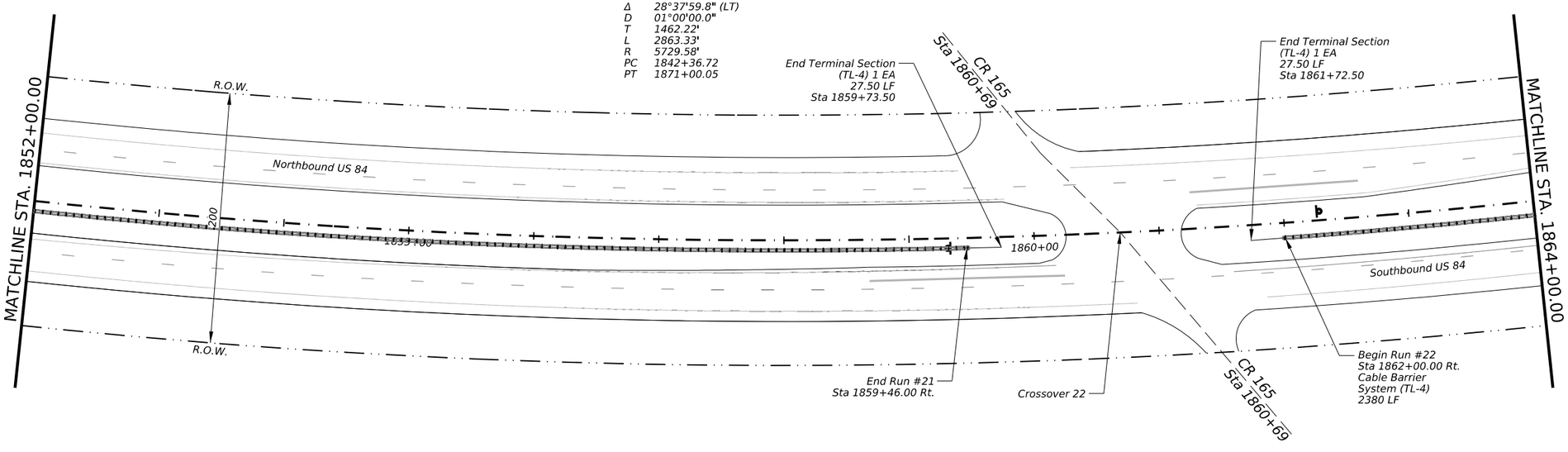
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 35 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		72

DATE: 1/30/2024 1:33:32 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011136/4 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





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1/26/2024

Texas Department of Transportation

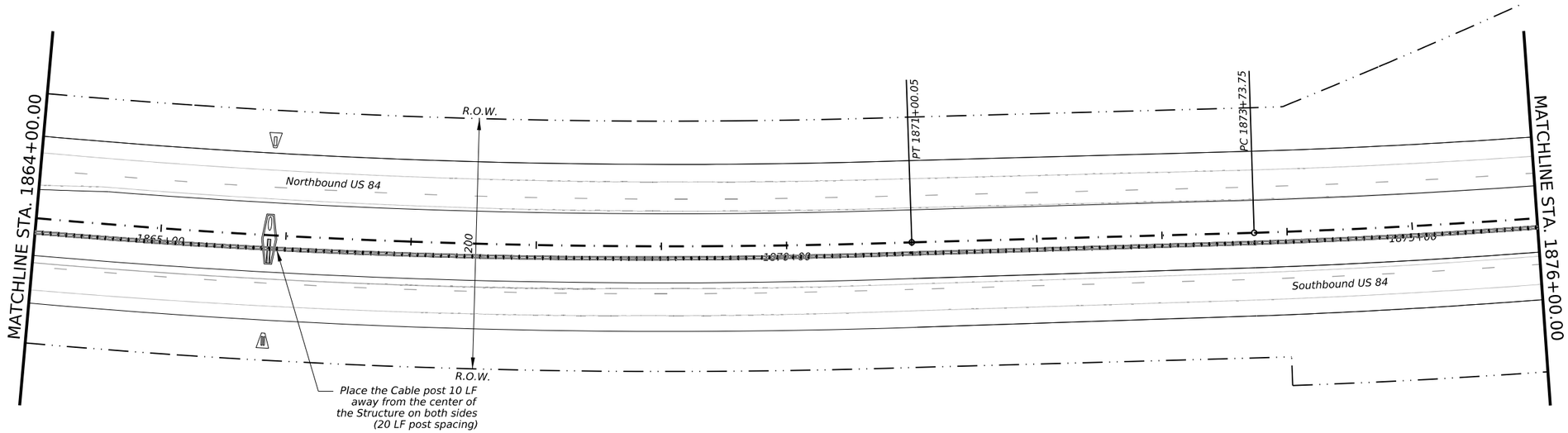
US 84, ETC.

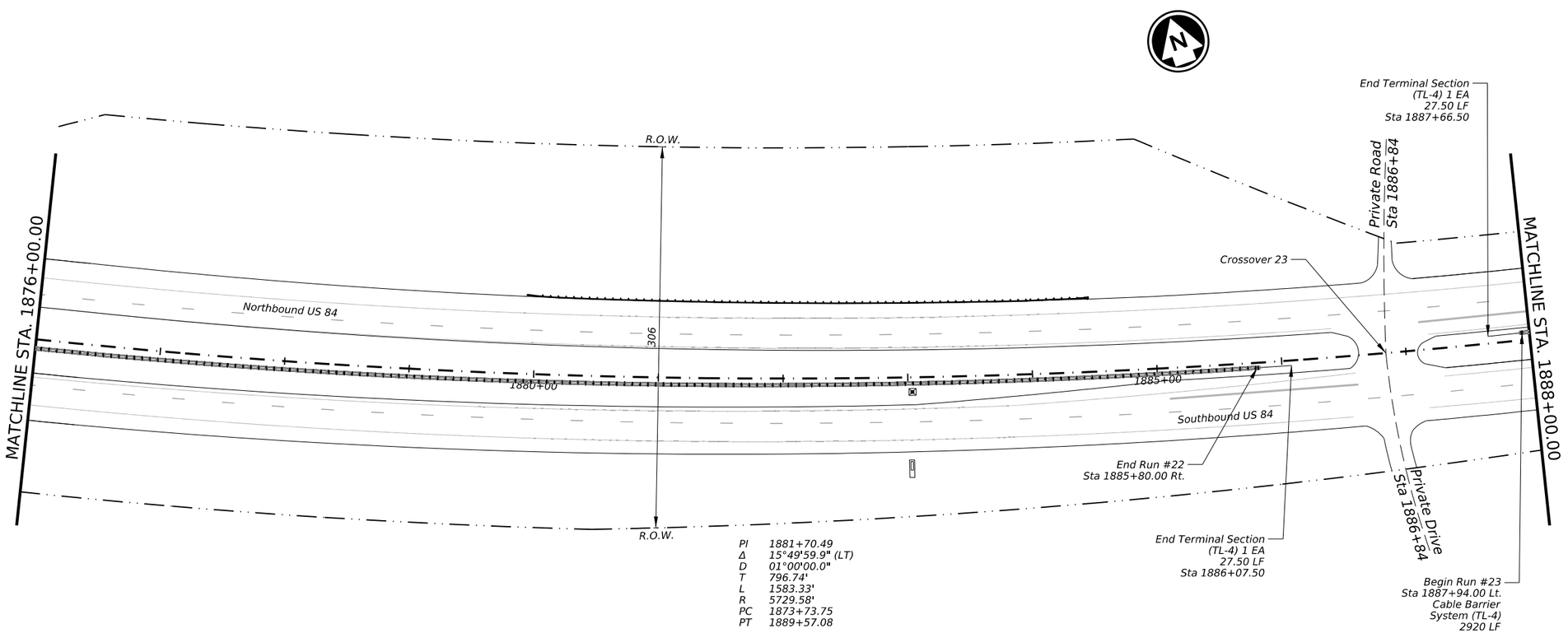
PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 36 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		73

DATE: 1/30/2024 1:33:34 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_NORTH.dgn





PI 1881+70.49
Δ 15°49'59.9" (LT)
D 01°00'00.0"
T 796.74'
L 1583.33'
R 5729.58'
PC 1873+73.75
PT 1889+57.08

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Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 37 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		74

DATE: 1/30/2024 1:33:35 PM
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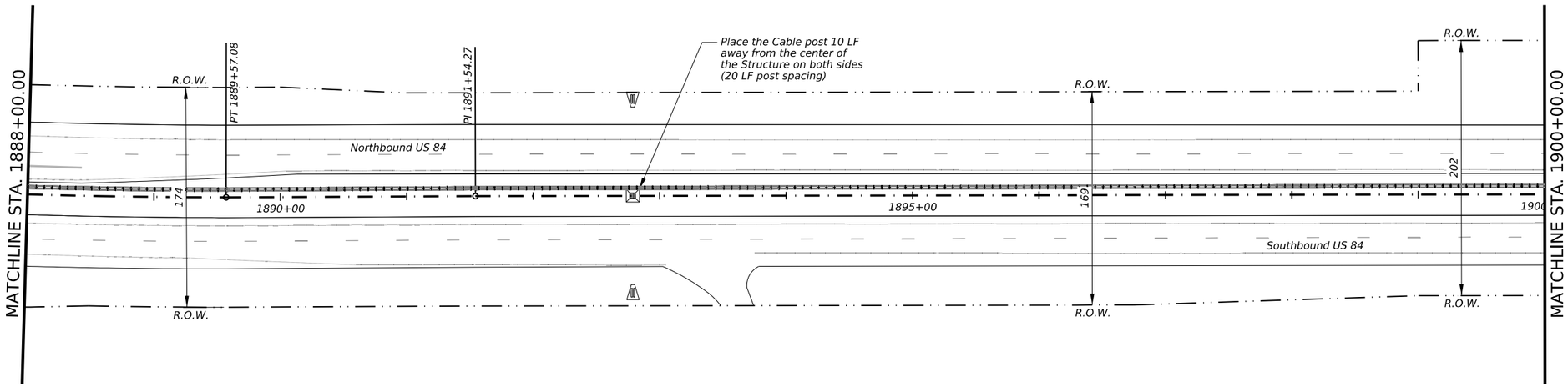
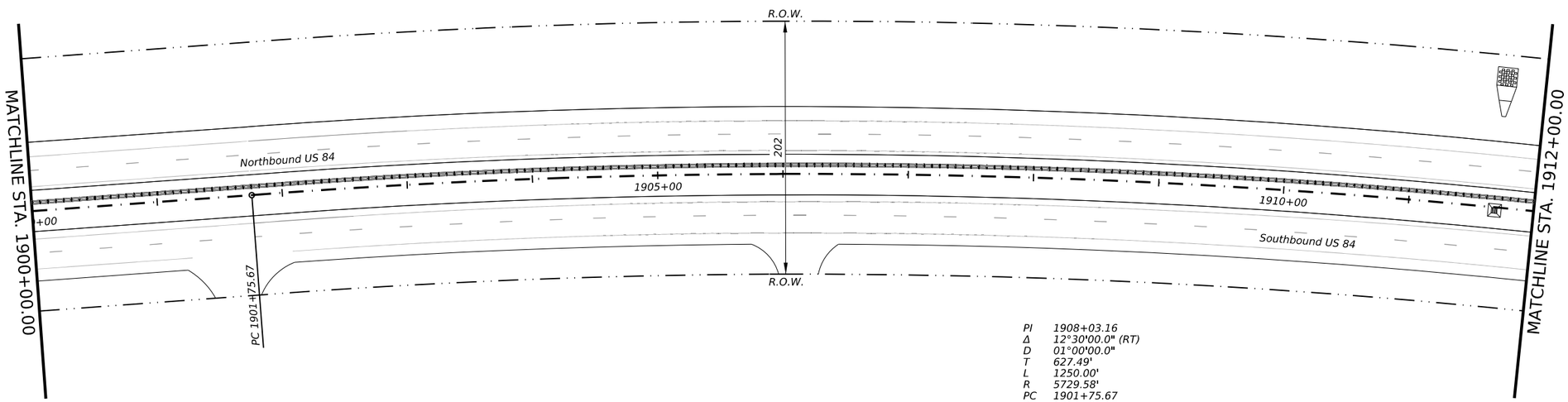
CK: DW: CK: DW:





PI	1908+03.16
Δ	12°30'00.0" (RT)
D	01°00'00.0"
T	627.49'
L	1250.00'
R	5729.58'
PC	1901+75.67
PT	1914+25.67

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		75

DATE: 1/30/2024 1:33:37 PM
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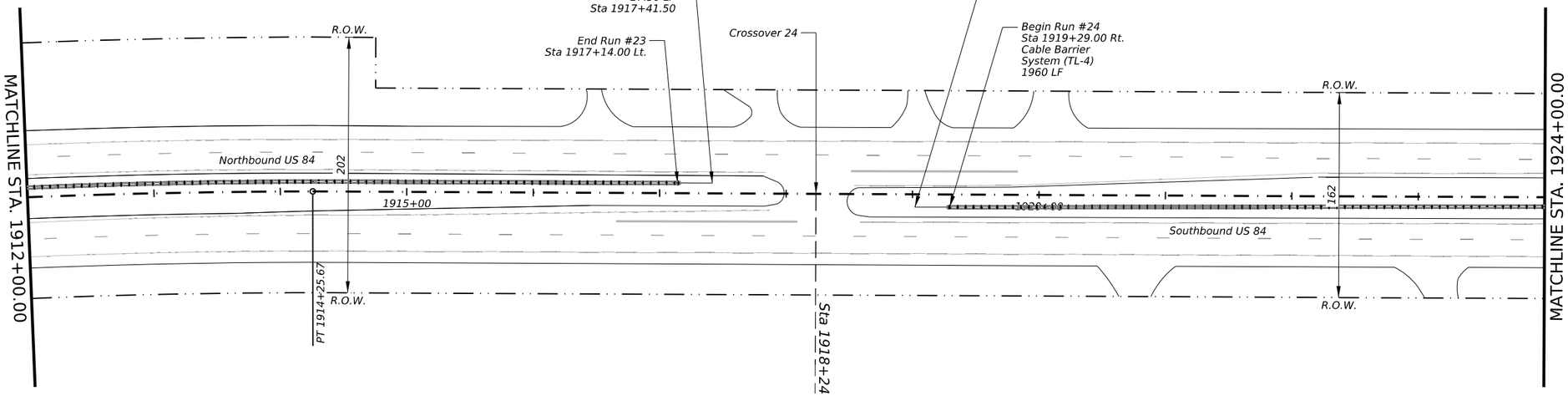

STATE OF TEXAS
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Shelley C. Harris P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 39 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		76

DATE: 1/30/2024 1:33:38 PM
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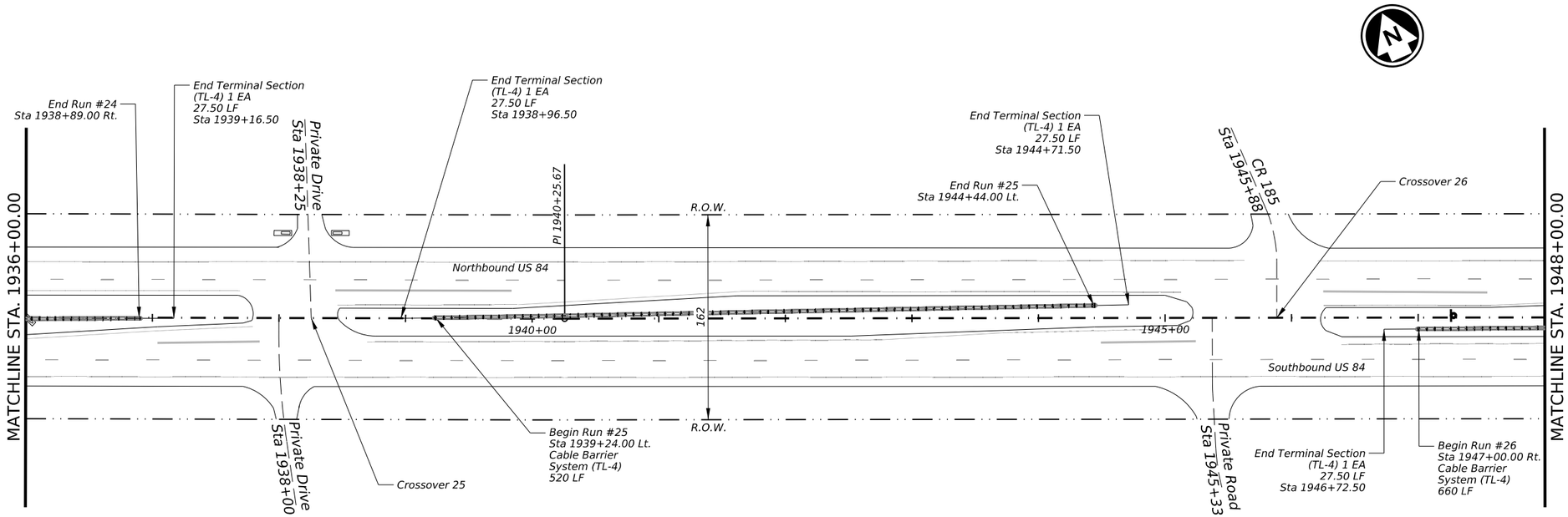

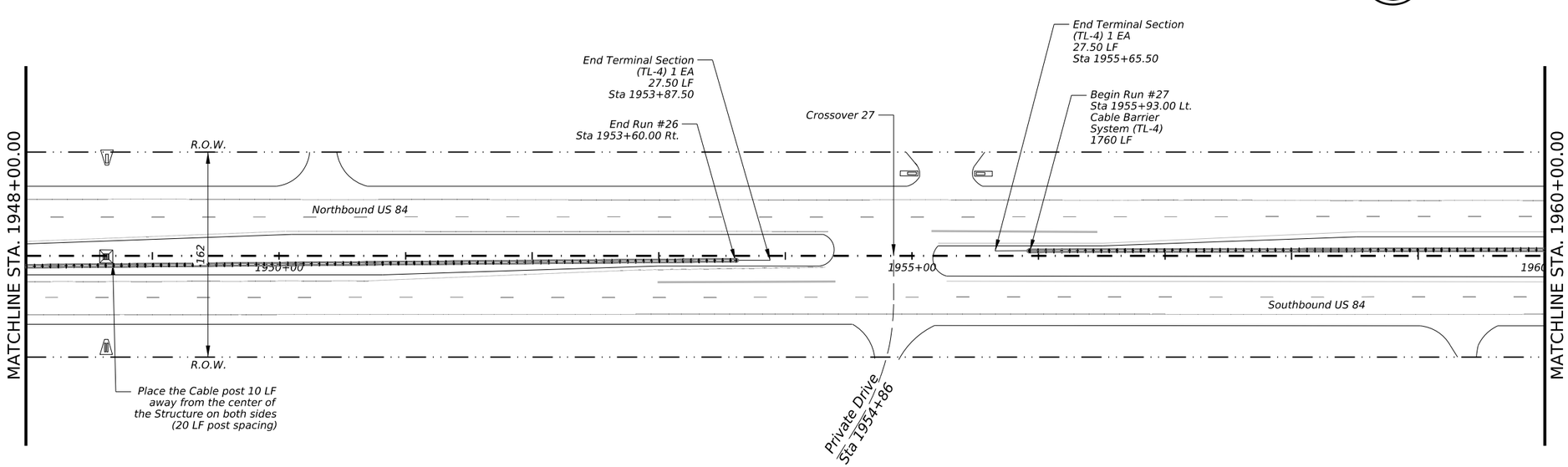

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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		77

DATE: 1/30/2024 1:33:40 PM
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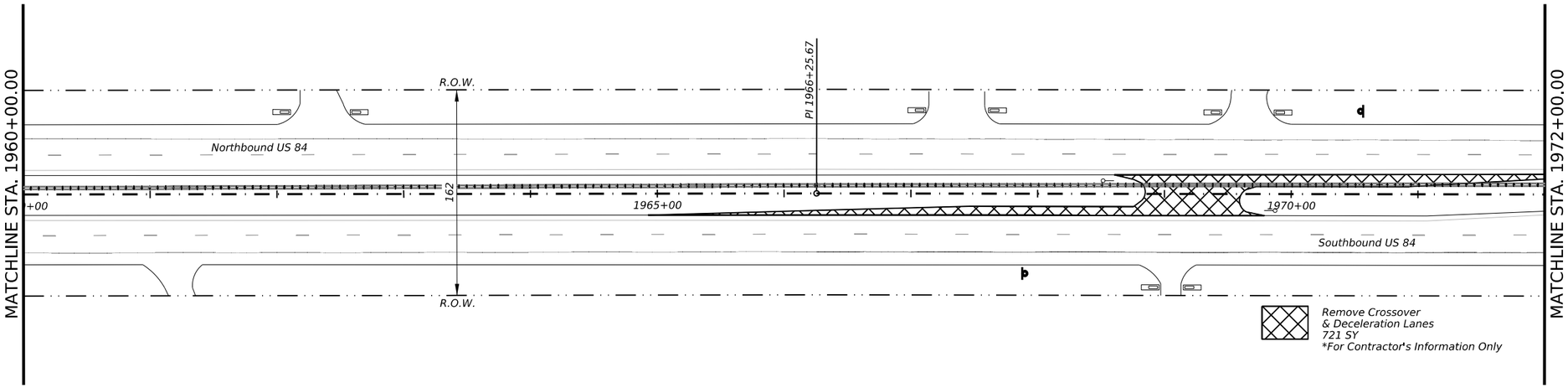

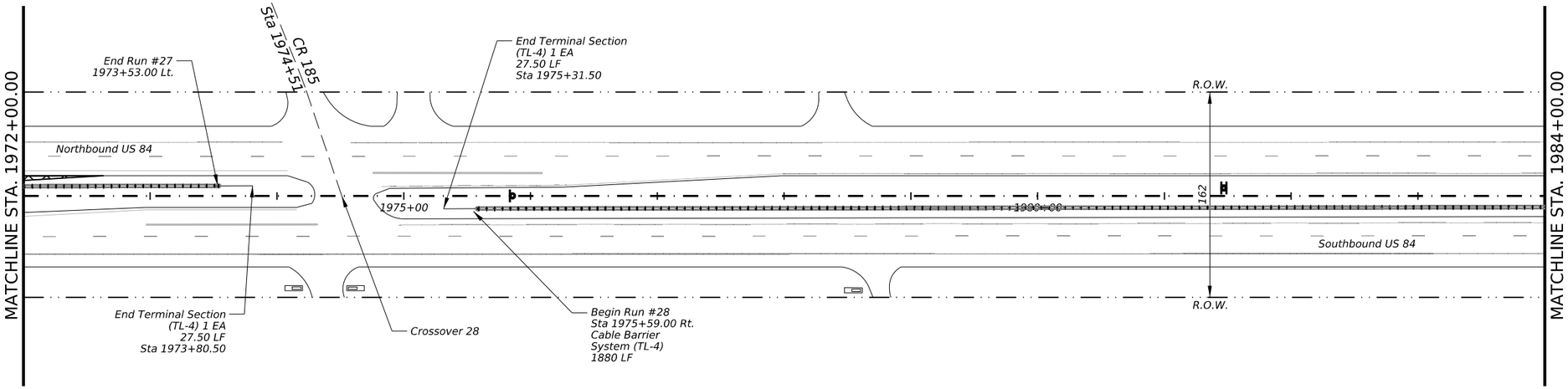

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Shelley C. Harris P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 41 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		78

DATE: 1/30/2024 1:33:41 PM
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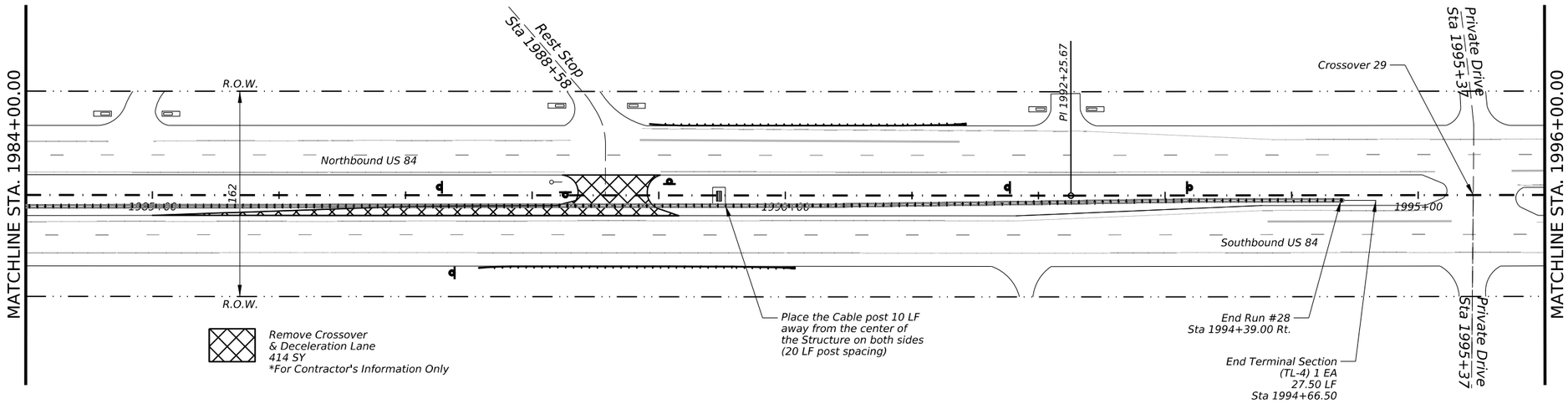

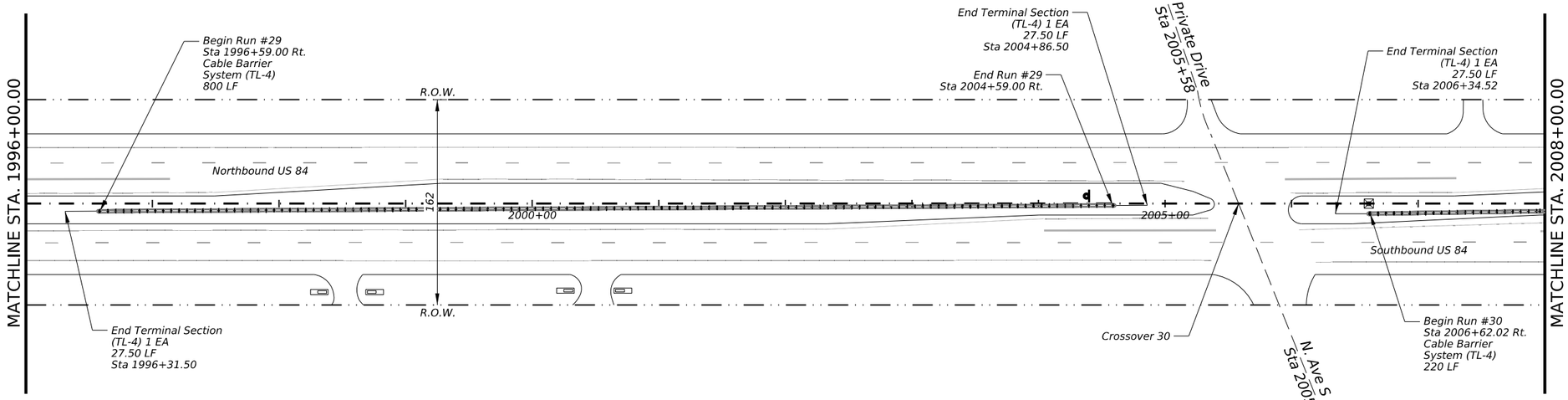

STATE OF TEXAS
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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 42 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		79

DATE: 1/30/2024 1:33:43 PM
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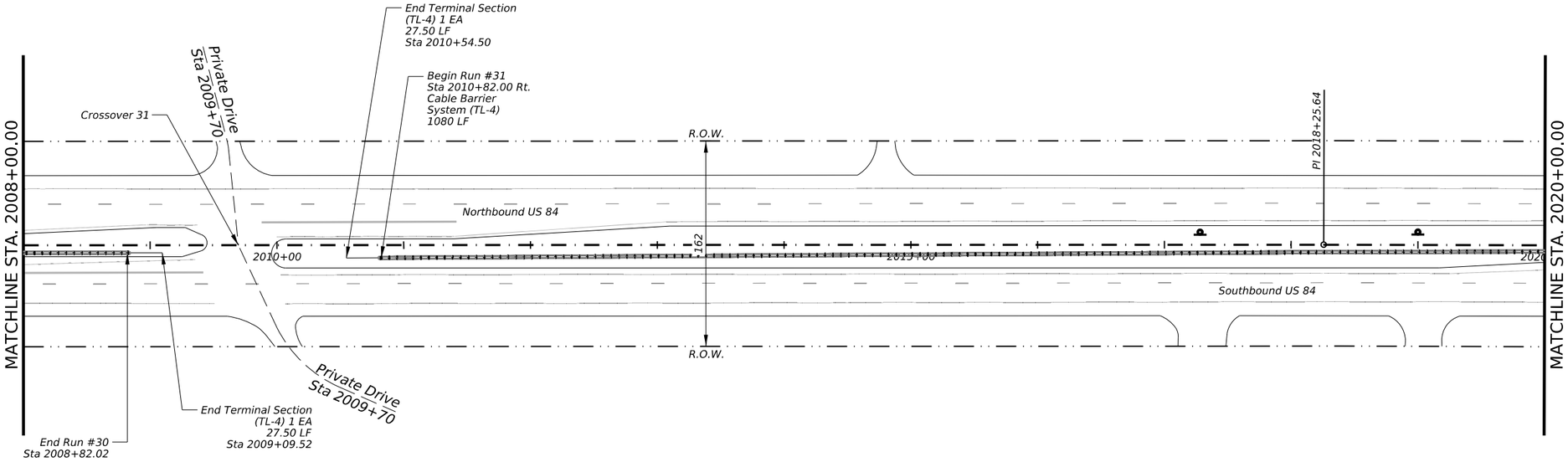

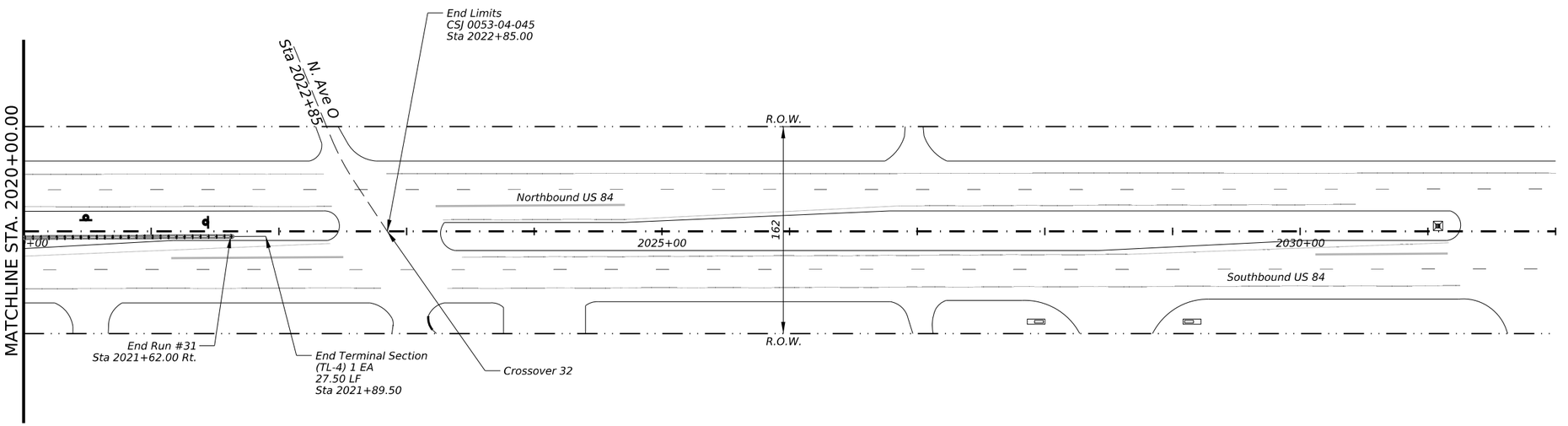

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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 North)
SCALE: 1"=100'

SHEET 43 OF 43

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		80

DATE: 1/30/2024 1:33:44 PM
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DW
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US 84 CABLE BARRIER

CABLE RUN	Station		General Location Crossover (C/O)		BASELINE OFFSET (LEFT OR RIGHT)	ENTIRE LENGTH	543-6002 CABLE BARRIER SYSTEM (TL-4)	543-6020 END TERM (EA)	3' WIDE MOW STRIP LENGTH	5" MOW STRIP AREA	432-6046 5" MOW STRIP (CY)	658-6095 INSTL DEL ASSM (D-DY)SZ 1(YFLX)GND	134-6002 BACKFILL	150-6001 BLADE	EMULS ASPH (EROSION CONT) (WIDTH)	EMULS ASPH (EROSION CONT) (AREA)	314-6013 EMULS ASPH (EROSION CONT) (CSS-1H) (0.22gal/sy)
	From	To	From	To		LF	LF	EA	LF	SY	CY	EA	STA	STA	LF	SY	GAL
1	62+42.83	71+57.83	CO 1	CO 2	LT	915.00	860	2	919	306.33	42.55	2	9.15	0.87	16	1626.67	357.87
2	83+74.50	96+49.50	CO 2	CO 3	LT	1275.00	1220	2	1279	426.33	59.21	2	12.75	1.21	16	2266.67	498.67
3	97+94.74	131+29.74	CO 3	CO 4	LT	3335.00	3280	2	3339	1113.00	154.58	2	33.35	3.16	16	5928.89	1304.36
4	140+58.50	151+73.50	CO 4	CO 5	RT	1115.00	1060	2	1119	373.00	51.81	2	11.15	1.06	16	1982.22	436.09
5	153+33.07	162+48.07	CO 5	Bridge Culvert	LT	915.00	860	2	919	306.33	42.55	2	9.15	0.87	16	1626.67	357.87
6	165+85.50	214+80.50	Bridge Culvert	CO 6	RT	4895.00	4840	2	4899	1633.00	226.81	2	48.95	4.64	16	8702.22	1914.49
7	216+42.71	236+77.71	CO 6	Bridge Culvert	LT	2035.00	1980	2	2039	679.67	94.40	2	20.35	1.93	16	3617.78	795.91
8	239+78.35	268+53.35	Bridge Culvert	CO 7	LT	2875.00	2820	2	2879	959.67	133.29	2	28.75	2.72	16	5111.11	1124.44
9	270+13.59	293+08.59	CO 7	CO 8	RT	2295.00	2240	2	2299	766.33	106.44	2	22.95	2.17	16	4080.00	897.60
10	294+60.67	305+75.67	CO 8	Bridge Culvert	LT	1115.00	1060	2	1119	373.00	51.81	2	11.15	1.06	16	1982.22	436.09
11	309+01.35	383+56.35	Bridge Culvert	CO 9	LT	7455.00	7400	2	7459	2486.33	345.32	2	74.55	7.06	16	13253.33	2915.73
12	385+45.18	397+40.18	CO 9	Bridge Culvert	LT	1195.00	1140	2	1199	399.67	55.51	2	11.95	1.13	16	2124.44	467.38
13	400+03.24	459+98.24	Bridge Culvert	CO 10	LT	5995.00	5940	2	5999	1999.67	277.73	2	59.95	5.68	16	10657.78	2344.71
14	461+57.46	475+52.46	CO 10	CO 11	RT	1395.00	1340	2	1399	466.33	64.77	2	13.95	1.32	16	2480.00	545.60
15	477+61.69	497+96.69	CO 11	CO 12	LT	2035.00	1980	2	2039	679.67	94.40	2	20.35	1.93	16	3617.78	795.91
16	499+58.50	540+13.50	CO 12	Cable Break	RT	4055.00	4000	2	4059	1353.00	187.92	2	40.55	3.84	16	7208.89	1585.96
17	539+58.50	596+33.50	Cable Break	Cable Break	LT	5675.00	5620	2	5679	1893.00	262.92	2	56.75	5.37	16	10088.89	2219.56
18	595+78.50	659+73.50	Cable Break	CO 13	RT	6395.00	6340	2	6399	2133.0	296.3	2	63.95	6.06	16	11368.89	2501.16
19	661+35.25	741+30.25	CO 13	CO 14	LT	7995.00	7940	2	7999	2666.3	370.3	2	79.95	7.57	16	14213.33	3126.93
20	743+25.08	754+00.08	CO 14	CO 15	RT	1075.00	1020	2	1079	359.7	50.0	2	10.75	1.02	16	1911.11	420.44
21	755+61.34	763+16.34	CO 15	CO 16	LT	755.00	700	2	759	253.0	35.1	2	7.55	0.71	16	1342.22	295.29
22	764+97.50	786+52.50	CO 16	CO 17	RT	2155.00	2100	2	2159	719.67	99.95	2	21.55	2.04	16	3831.11	842.84
23	788+30.00	801+45.00	CO 17	Bridge Culvert	RT	1315.00	1260	2	1319	439.67	61.06	2	13.15	1.25	16	2337.78	514.31
					0053-05-053 Total:	68265.00	67000	46	68357	22785.67	3164.68	46	682.65	64.64	368	121360.00	26699.20
24	820+19.12	856+94.12	CO 19	CO 20	LT	3675.00	3620	2	3679	1226.33	170.32	2	36.75	3.48	16	6533.33	1437.33
25	858+67.29	874+82.29	CO 20	Bridge Culvert	LT	1615.00	1560	2	1619	539.67	74.95	2	16.15	1.53	16	2871.11	631.64
26	876+15.39	911+90.39	Bridge Culvert	CO 21	LT	3575.00	3520	2	3579	1193.00	165.69	2	35.75	3.39	16	6355.56	1398.22
27	913+43.50	953+18.50	CO 21	Bridge Culvert	LT	3975.00	3920	2	3979	1326.33	184.21	2	39.75	3.76	16	7066.67	1554.67
28	960+12.50	986+07.50	Bridge Culvert	CO 22	RT	2595.00	2540	2	2599	866.33	120.32	2	25.95	2.46	16	4613.33	1014.93
29	986+64.50	1020+99.50	CO 22	CO 23	LT	3435.00	3380	2	3439	1146.33	159.21	2	34.35	3.25	16	6106.67	1343.47
30	1024+82.50	1037+57.50	CO 23	Bridge Culvert	RT	1275.00	1220	2	1279	426.33	59.21	2	12.75	1.21	16	2266.67	498.67
31	1040+10.50	1087+85.50	Bridge Culvert	CO 24	LT	4775.00	4720	2	4779	1593.00	221.25	2	47.75	4.52	16	8488.89	1867.56
32	1089+46.50	1118+21.50	CO 24	Bridge Culvert	RT	2875.00	2820	2	2879	959.67	133.29	2	28.75	2.72	16	5111.11	1124.44
33	1122+40.50	1137+55.50	Bridge Culvert	CO 25	LT	1515.00	1460	2	1519	506.33	70.32	2	15.15	1.43	16	2693.33	592.53
34	1139+09.50	1152+44.50	CO 25	Bridge Culvert	LT	1335.00	1280	2	1339	446.33	61.99	2	13.35	1.26	16	2373.33	522.13
35	1153+93.50	1182+28.50	Bridge Culvert	CO 26	RT	2835.00	2780	2	2839	946.33	131.44	2	28.35	2.68	16	5040.00	1108.80
36	1184+28.50	1198+83.50	CO 26	CO 27	LT	1455.00	1400	2	1459	486.33	67.55	2	14.55	1.38	16	2586.67	569.07
37	1200+26.50	1227+01.50	CO 27	Scurry CL	RT	2675.00	2620	2	2679	893.00	124.03	2	26.75	2.53	16	4755.56	1046.22
					0053-06-032 Total:	37610.00	36840	28	37666	12555.33	1743.80	28	376.10	35.61	224	66862.22	14709.69

STATE OF TEXAS
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99197
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PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

CABLE BARRIER SUMMARY (South US 84)

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		81

DATE: 1/30/2024 3:29:27 PM
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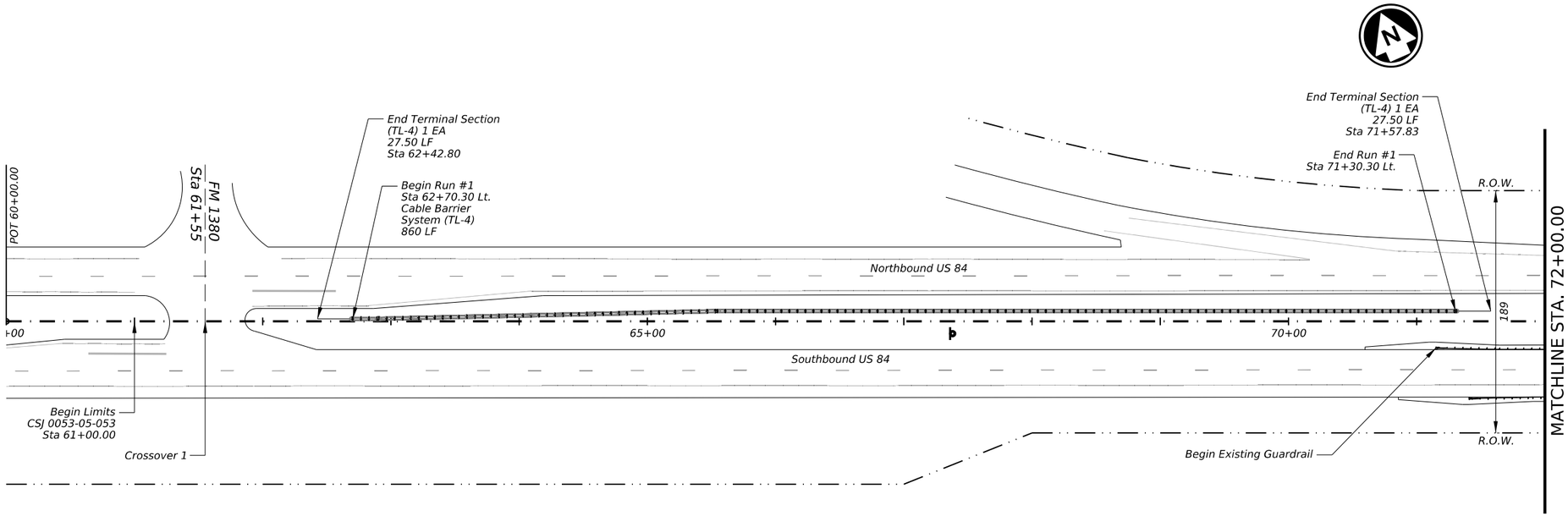

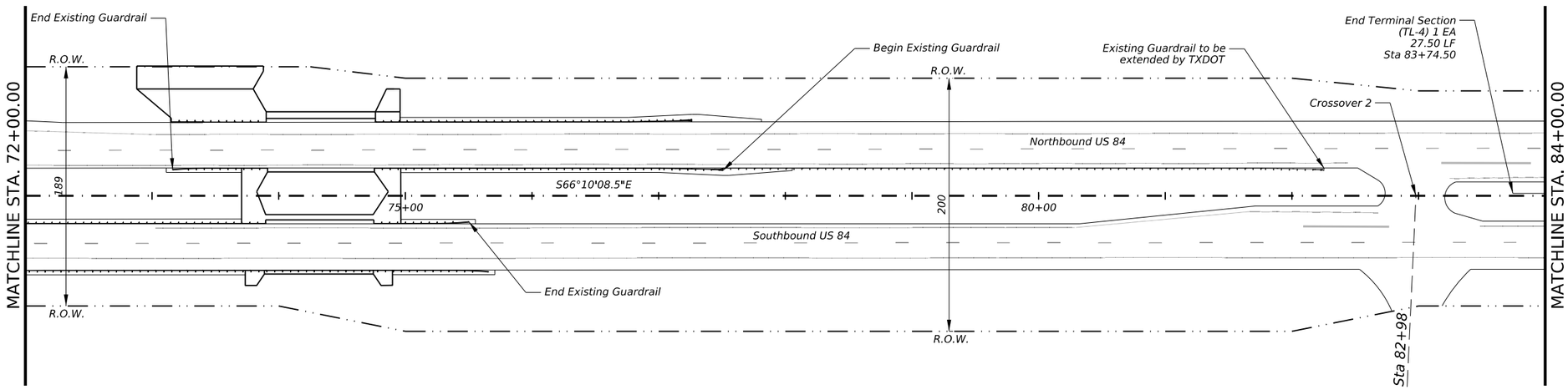

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99197
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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 1 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		82

DATE: 2/2/2024 4:48:33 PM
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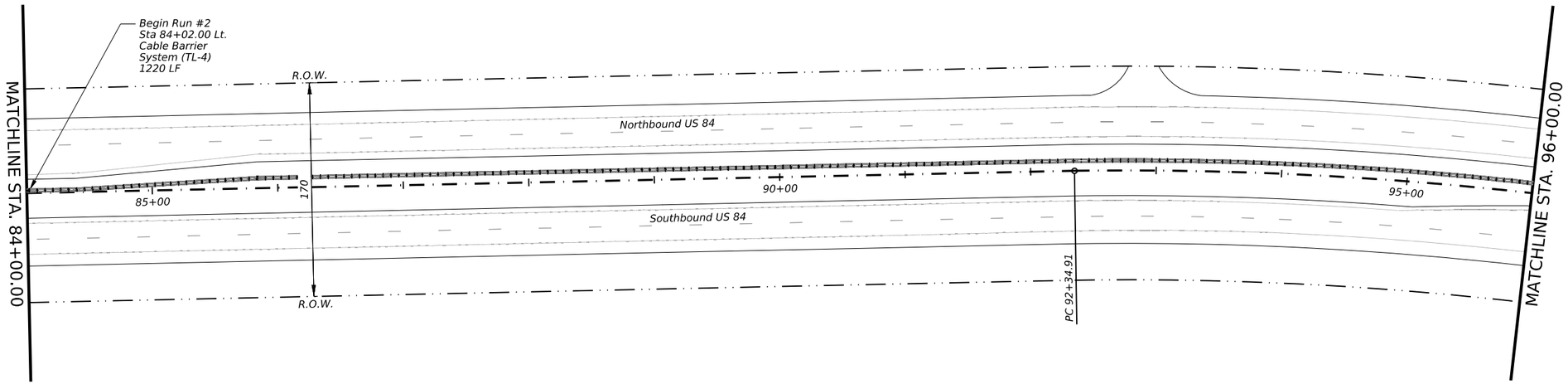

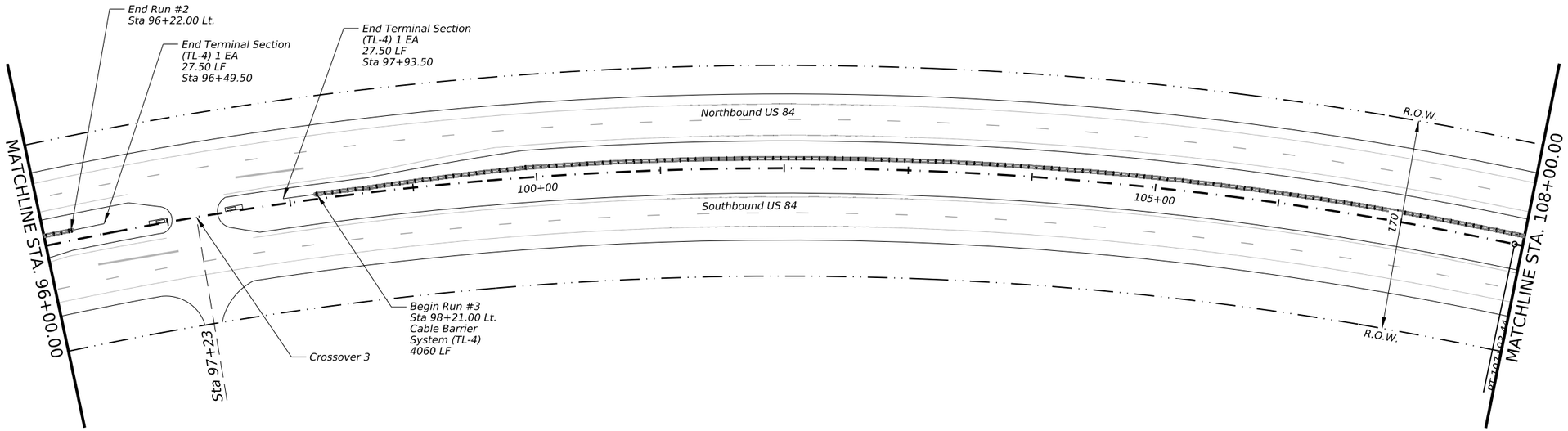

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VEIW
(US 84 South)
SCALE: 1"=100'

SHEET 2 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		83

DATE: 2/2/2024 4:48:56 PM
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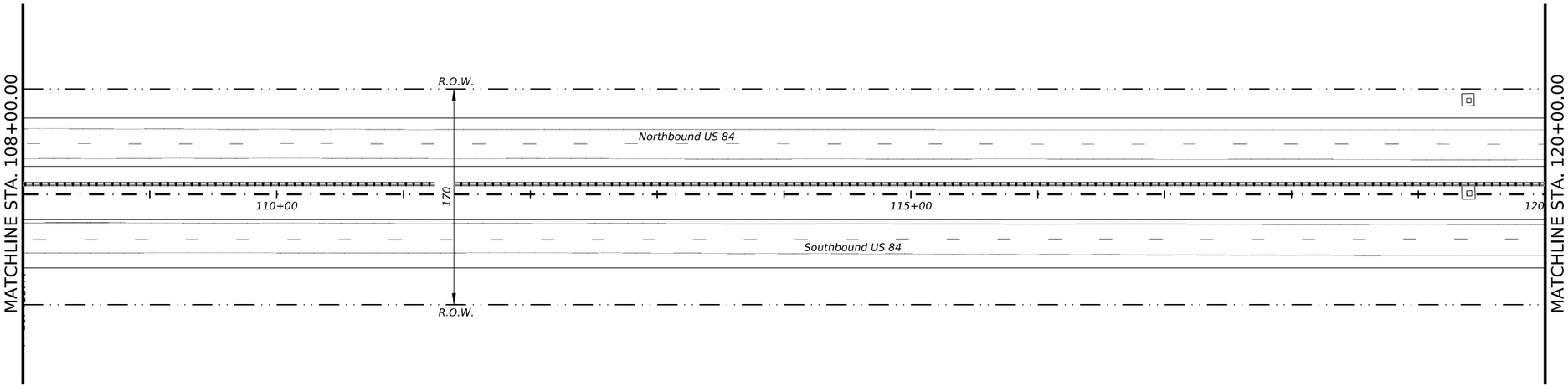

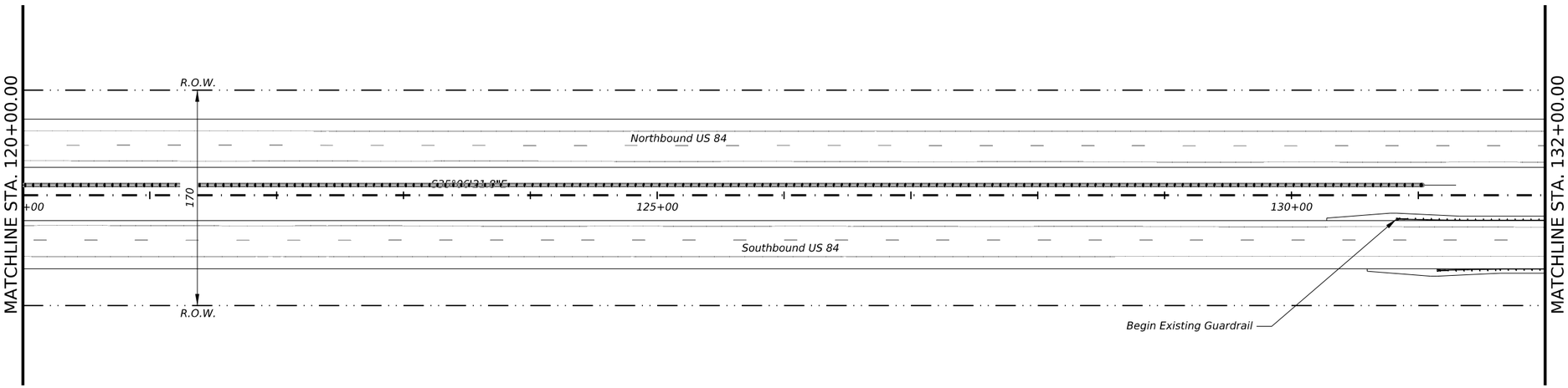

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 3 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		84

DATE: 2/2/2024 4:49:19 PM
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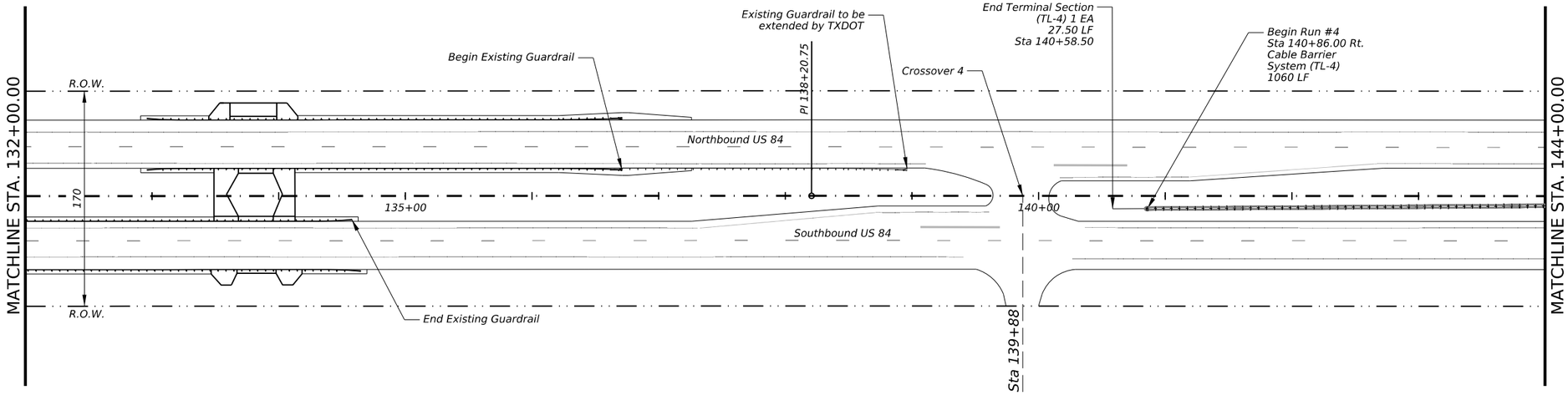

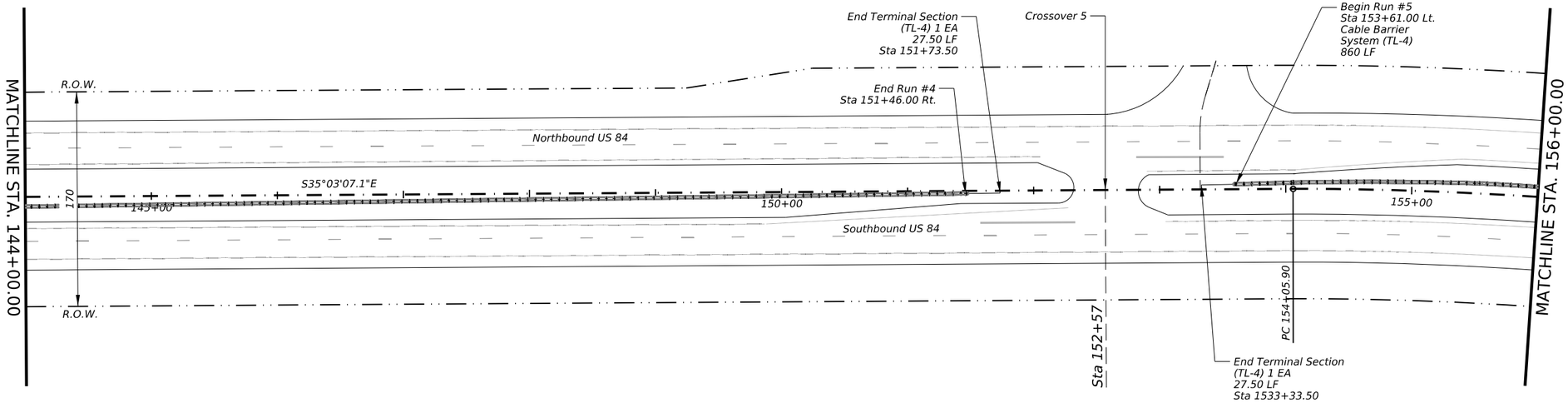

STATE OF TEXAS
SHELLEY C. HARRIS
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LICENSED PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 4 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		85

DATE: 2/2/2024 4:49:48 PM
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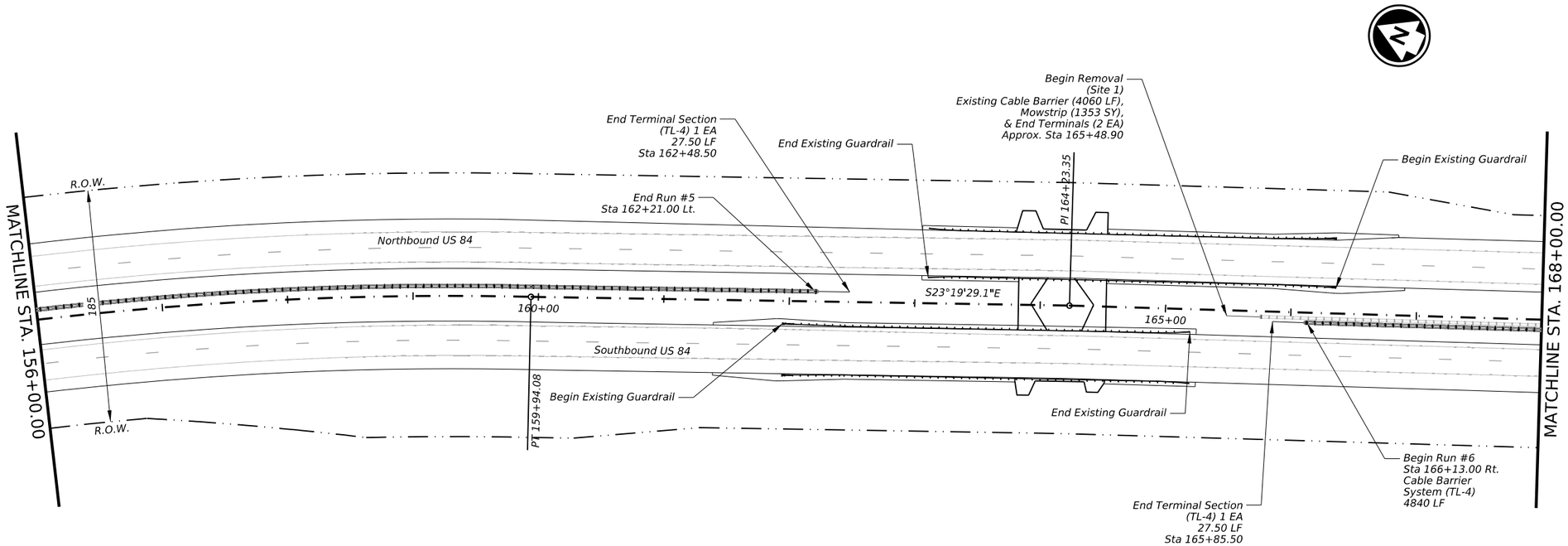

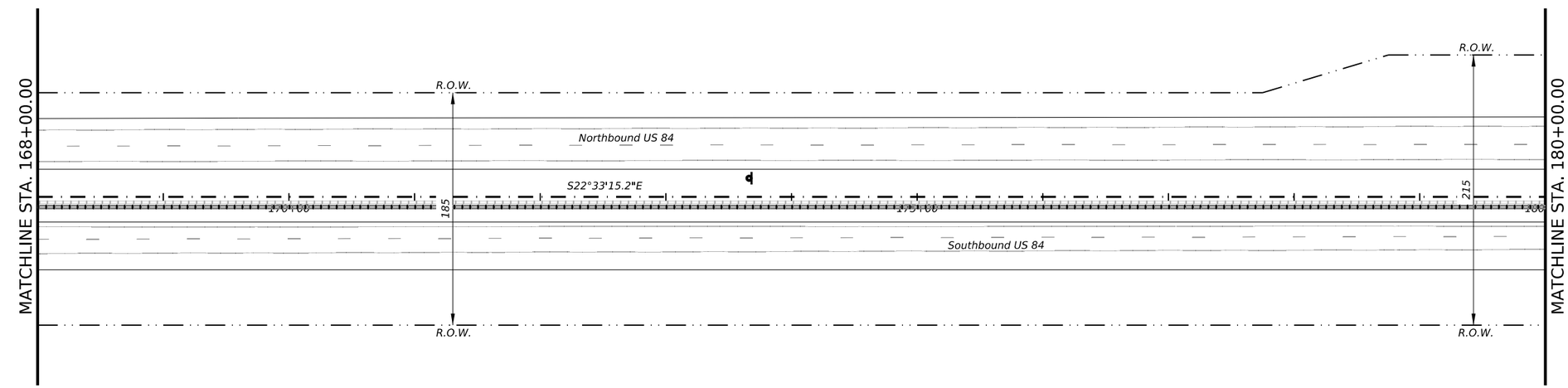

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99197
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STATE OF TEXAS

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 5 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		86

DATE: 2/2/2024 4:50:15 PM
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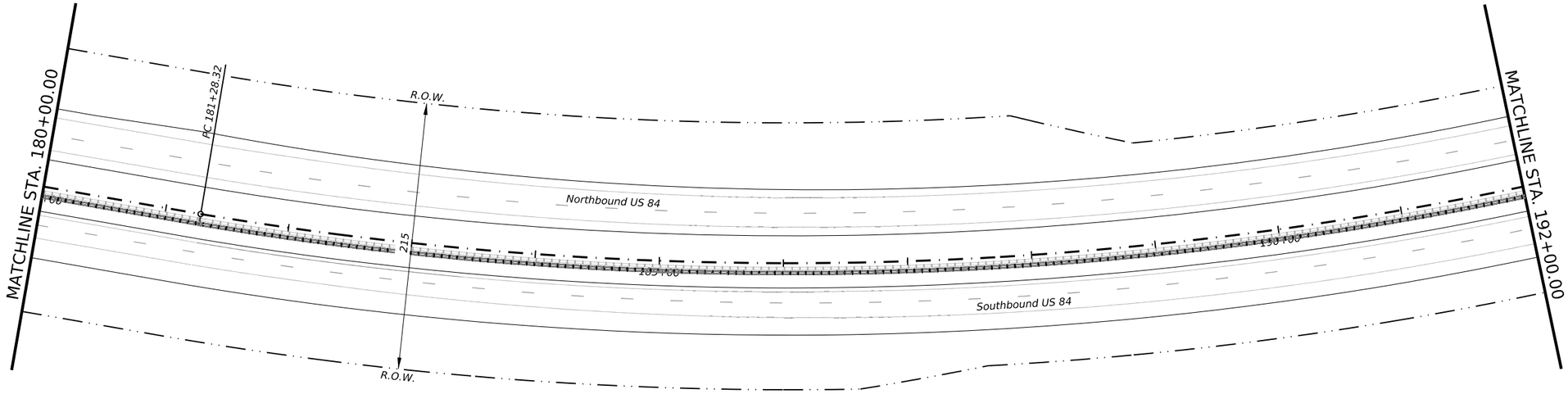

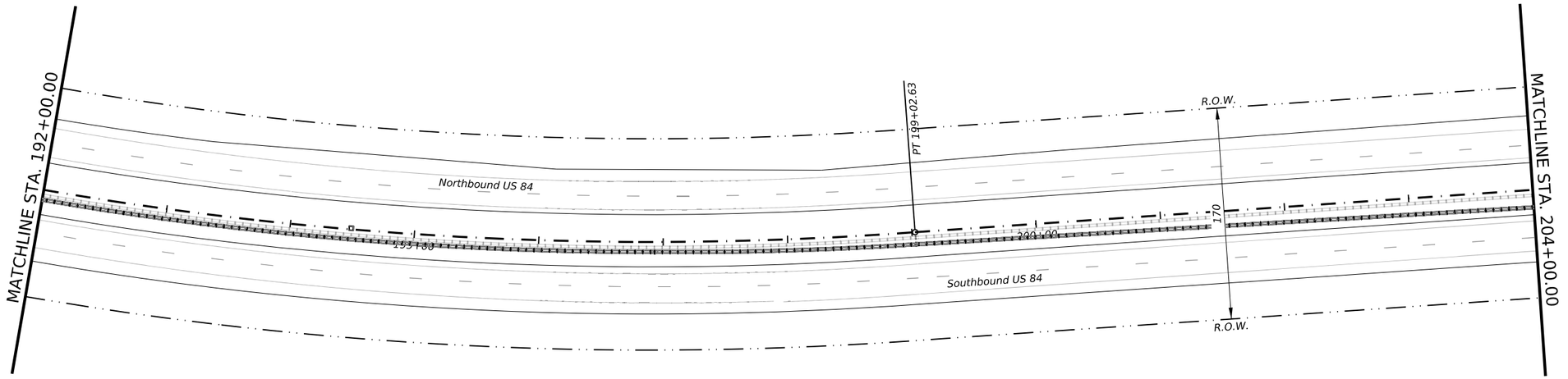

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 6 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		87

DATE: 2/2/2024 4:50:37 PM
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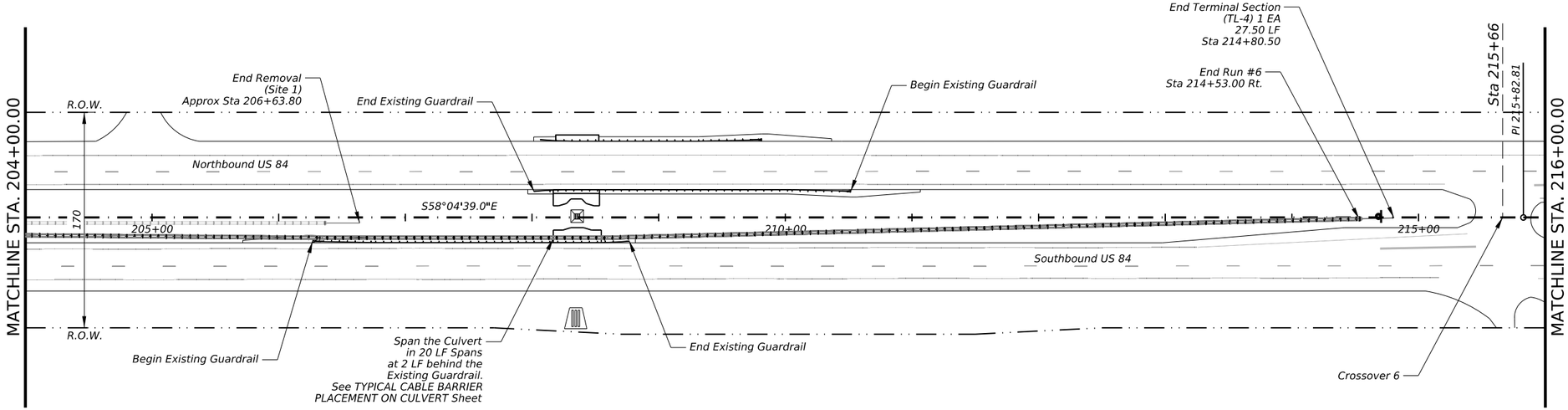

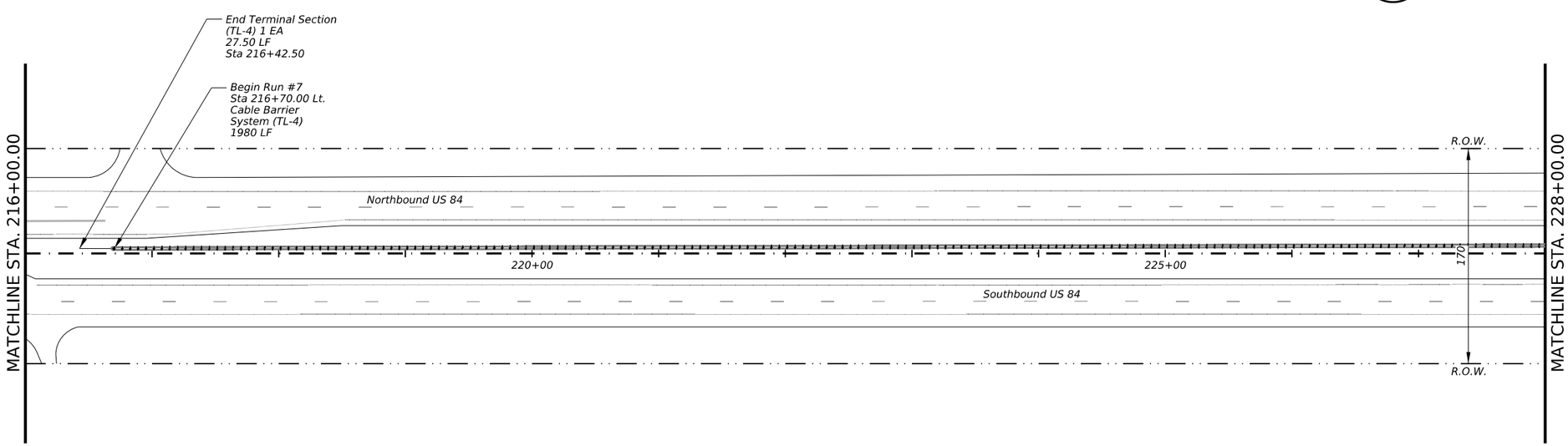

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 7 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		88

DATE: 2/2/2024 4:50:58 PM
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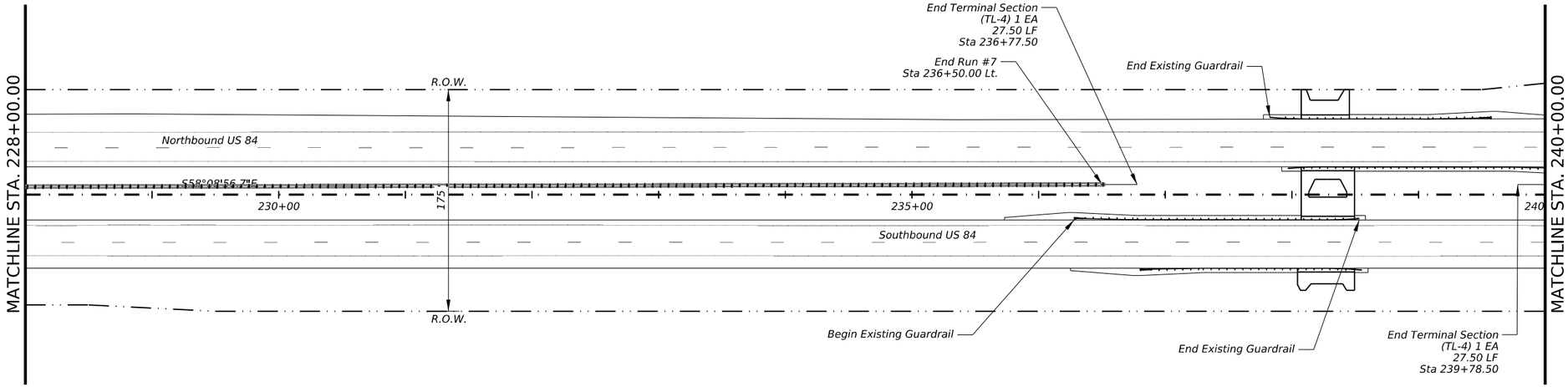

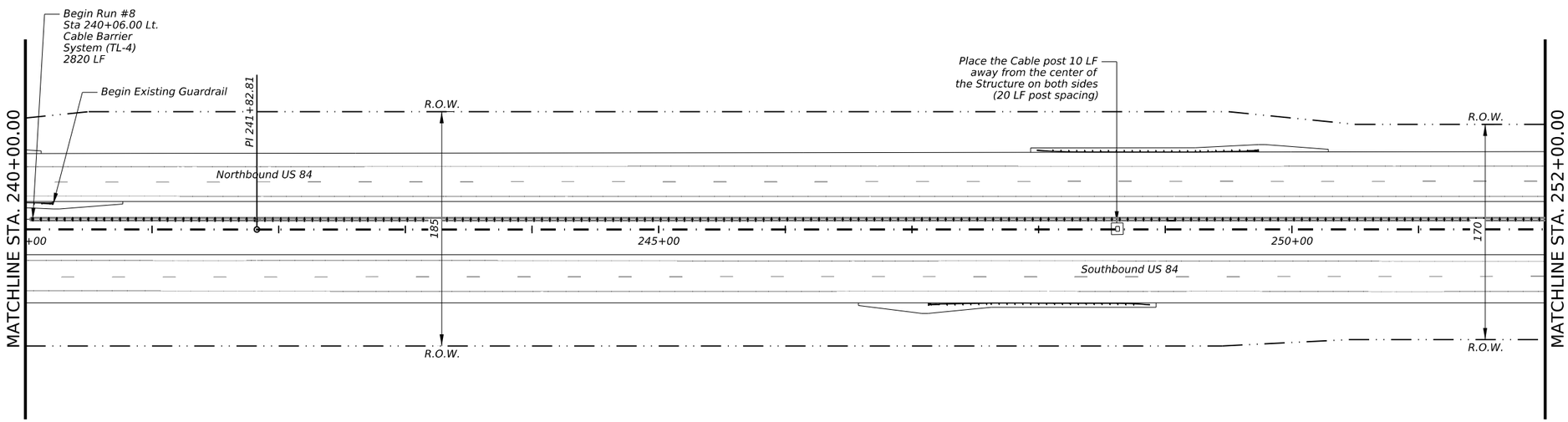

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 8 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		89

DATE: 2/2/2024 4:51:25 PM
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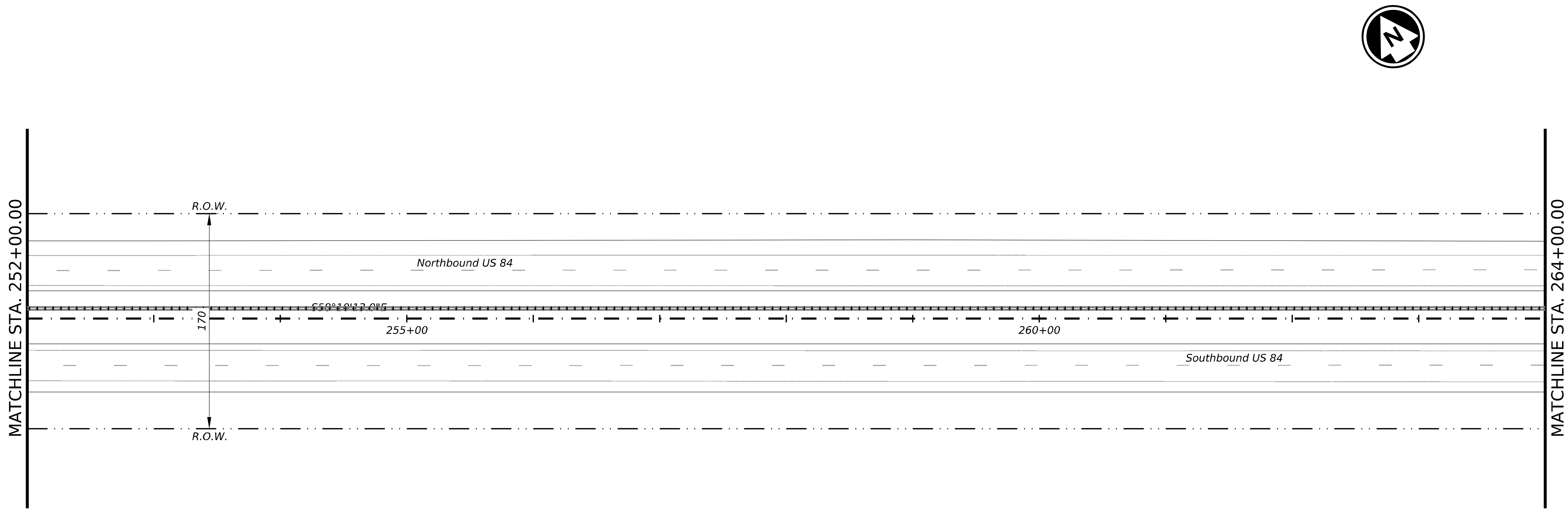

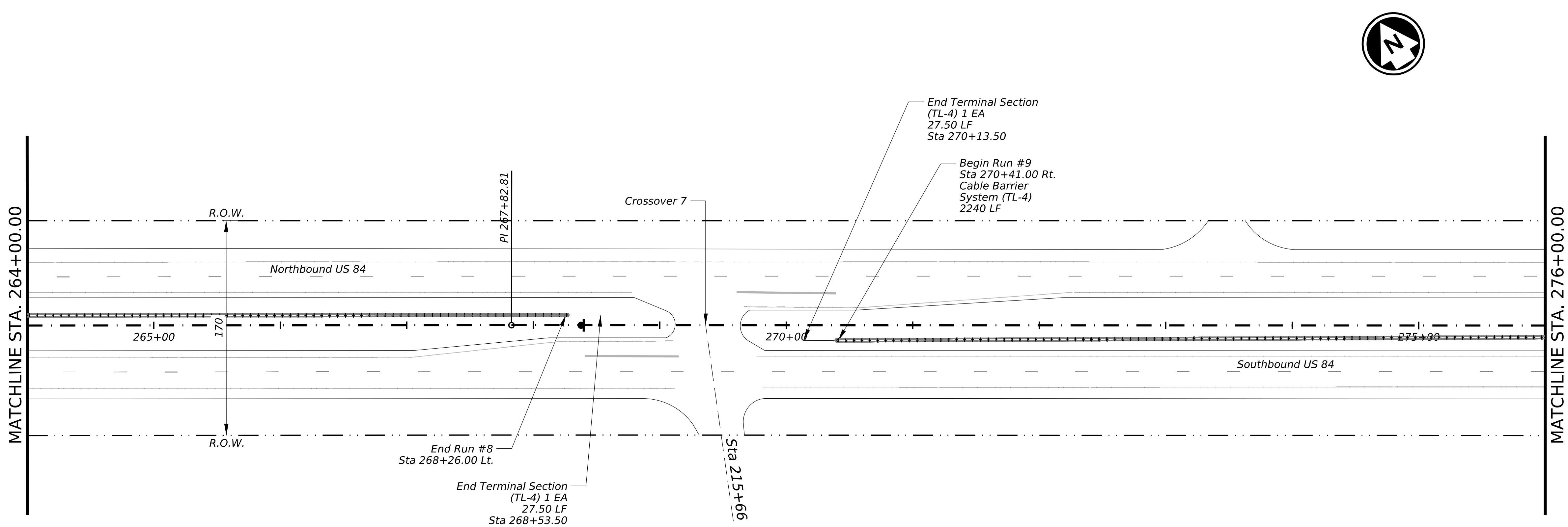

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1''=100'

SHEET 9 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		90

DATE: 2/2/2024 4:51:49 PM
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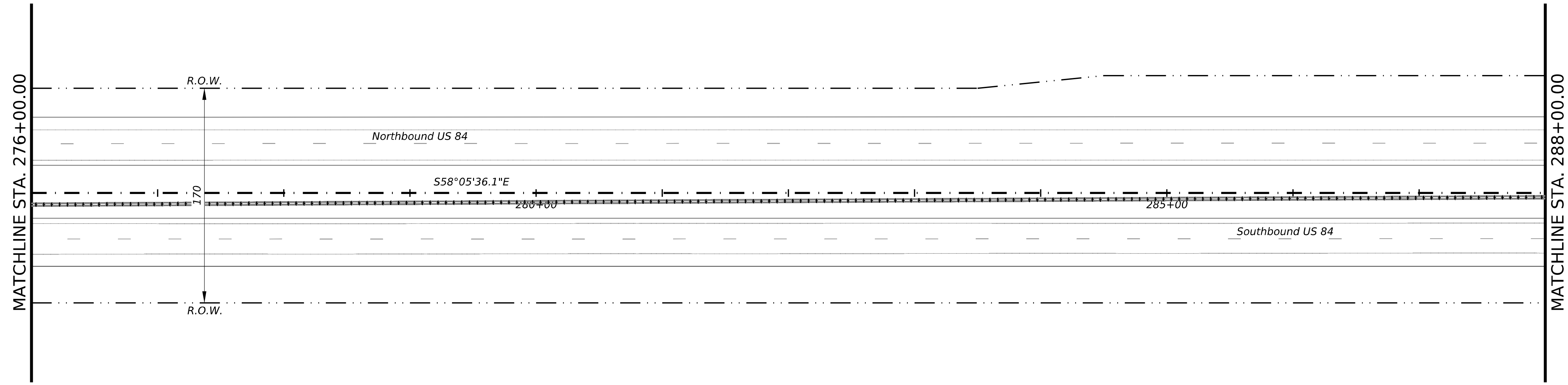

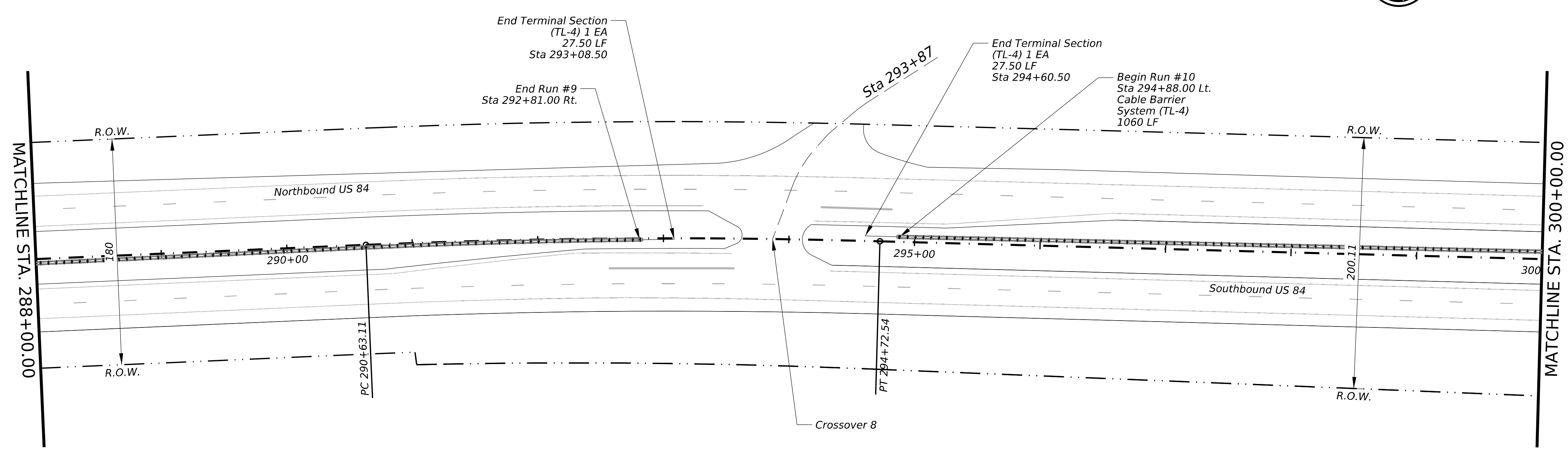

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1''=100'

SHEET 10 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		91

DATE: 2/2/2024 4:52:10 PM
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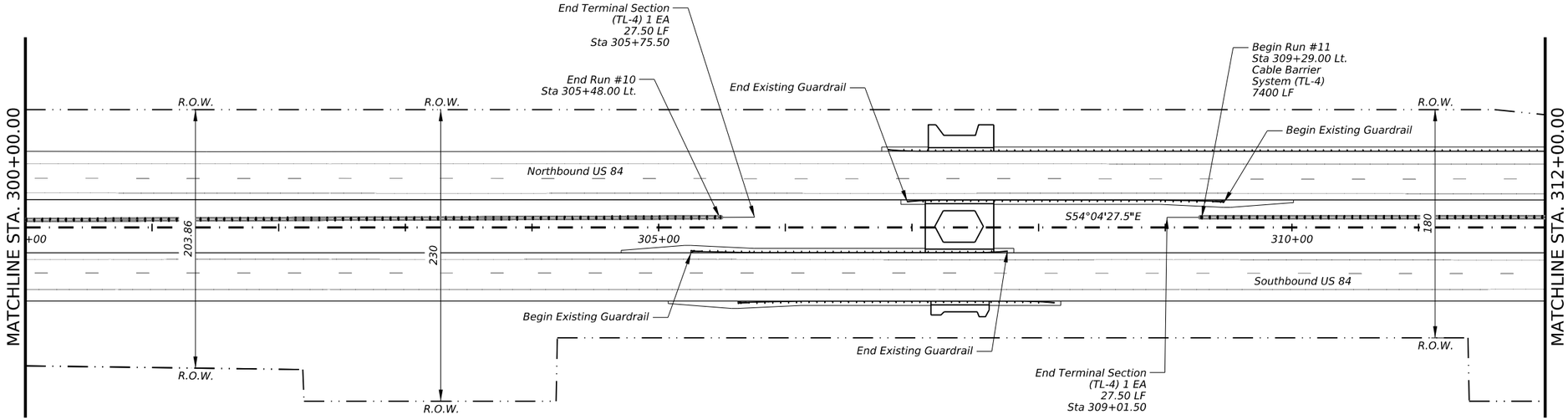

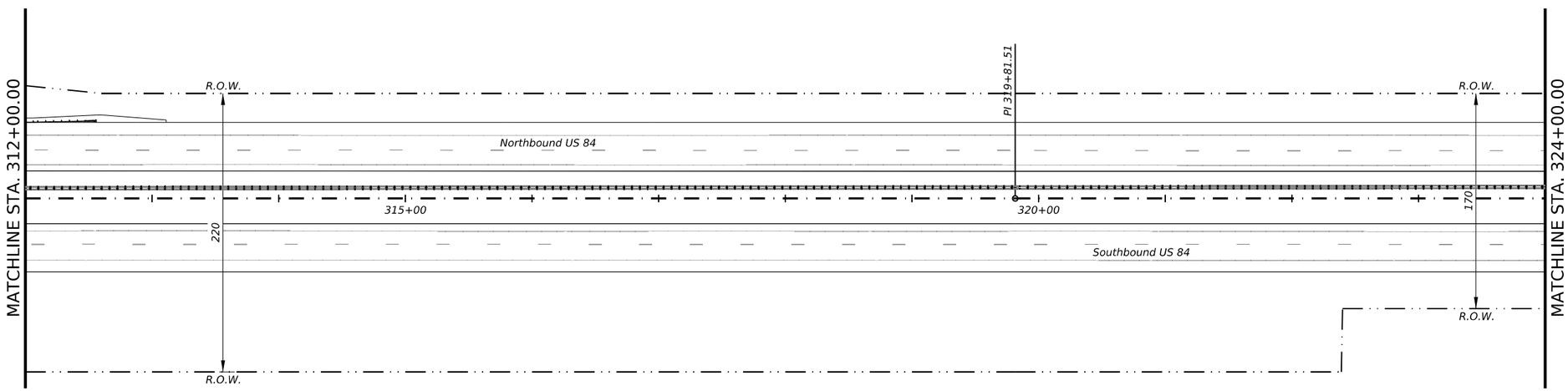

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 11 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		92

DATE: 2/2/2024 4:52:30 PM
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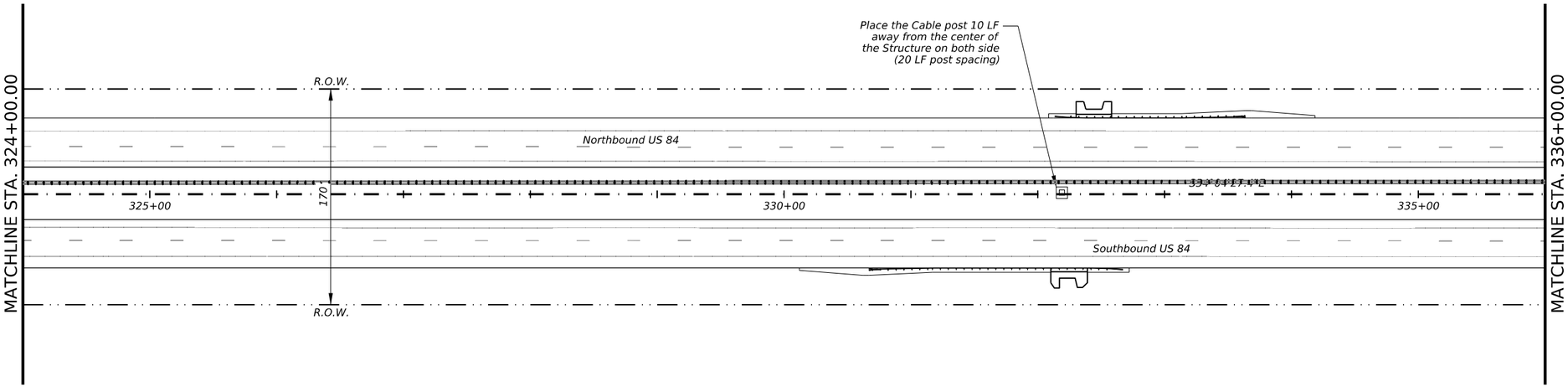

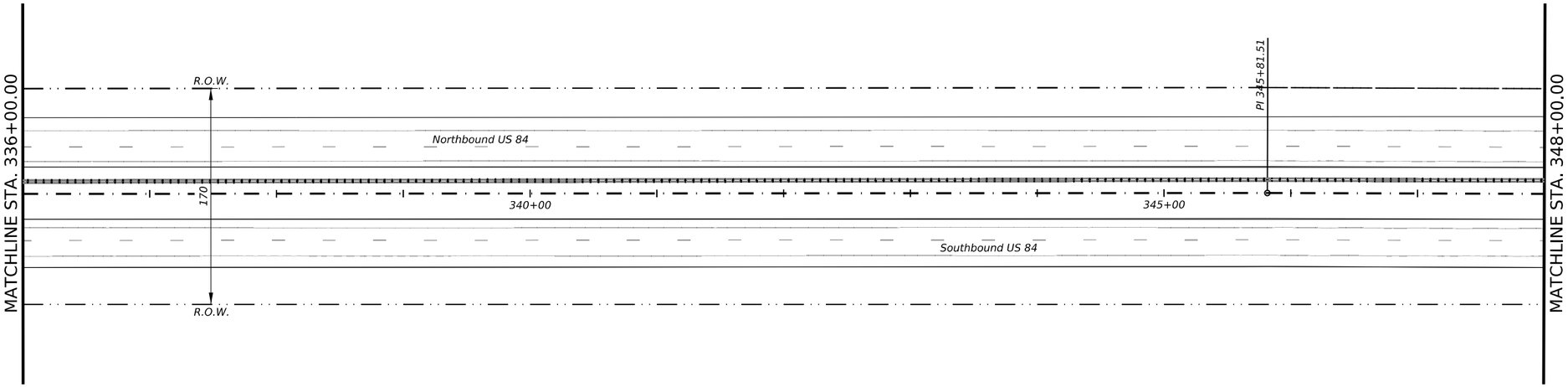

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 12 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		93

DATE: 2/2/2024 4:53:19 PM
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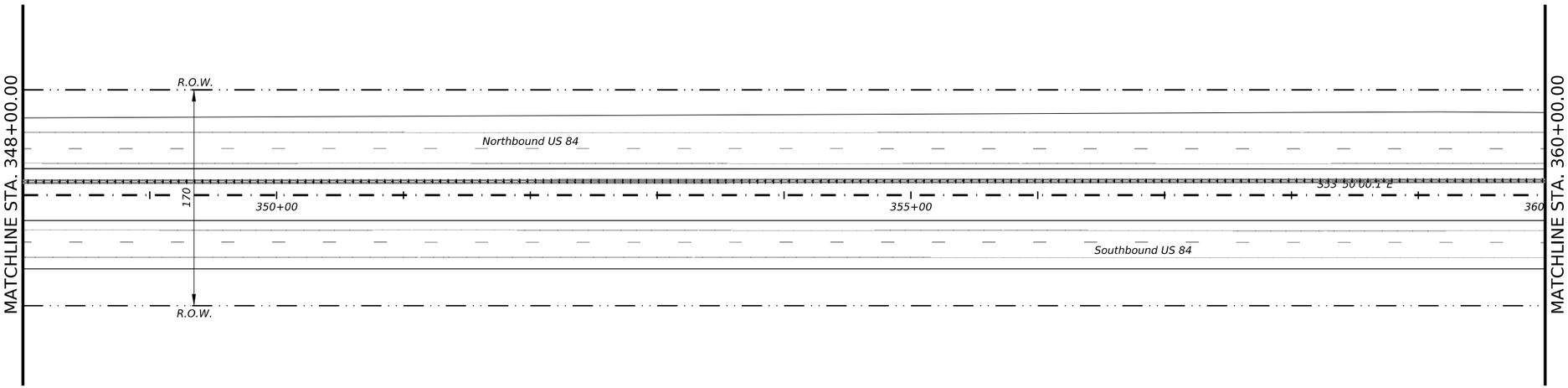

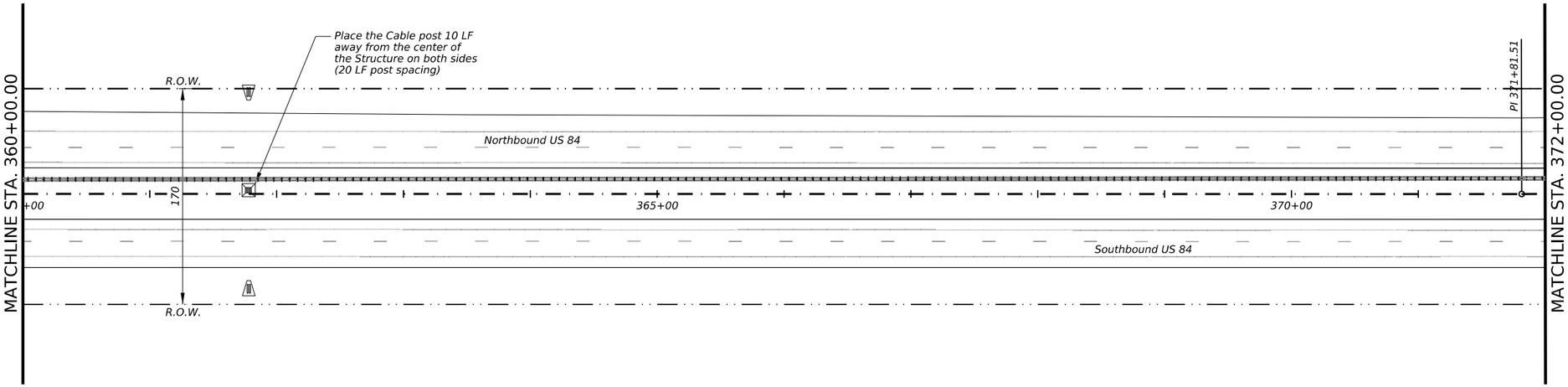

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 13 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		94

DATE: 2/2/2024 4:53:53 PM
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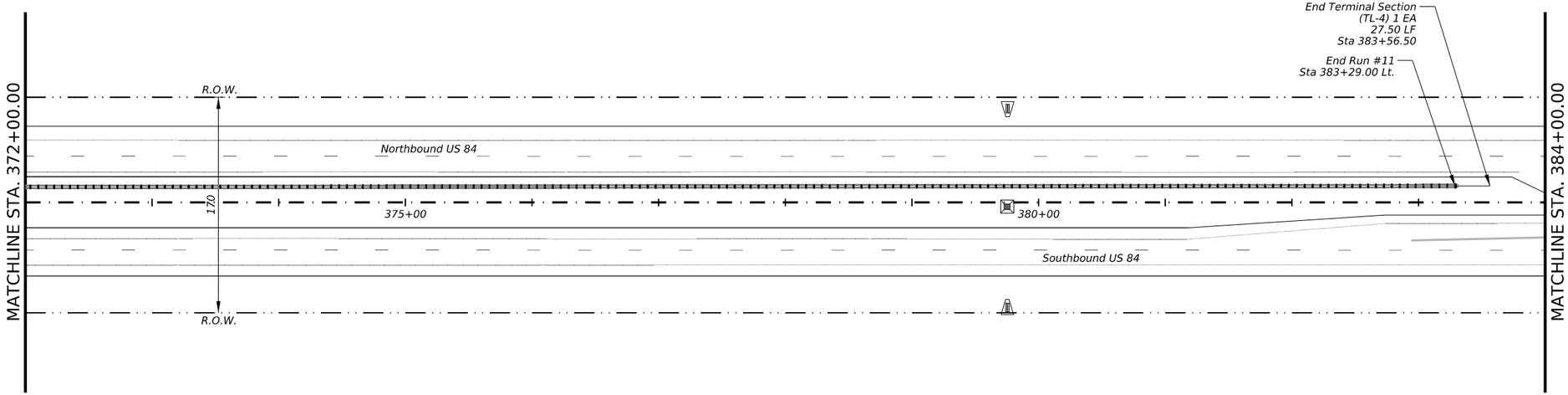

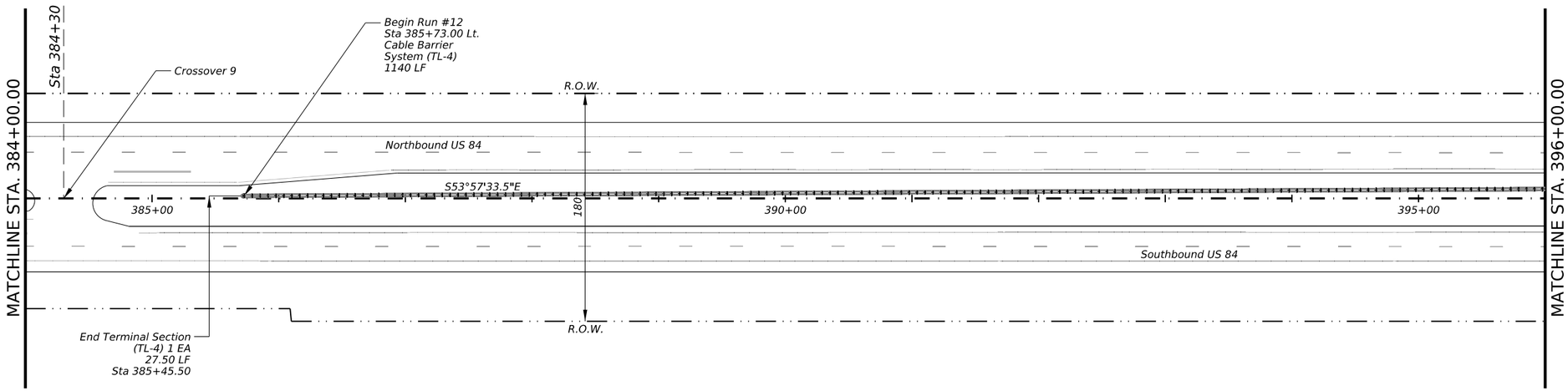

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		95

DATE: 2/2/2024 4:54:18 PM
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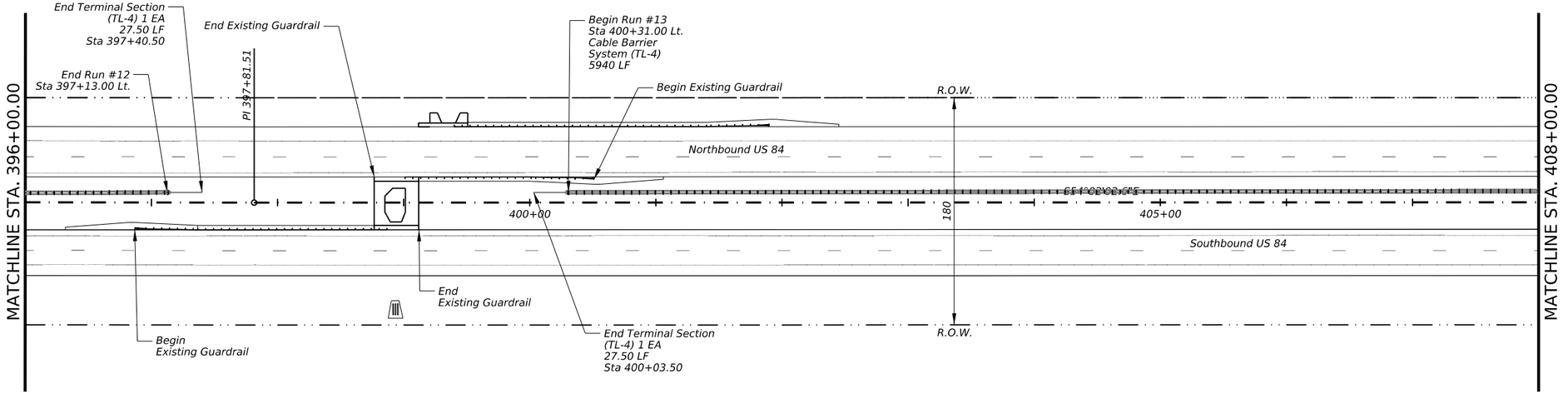

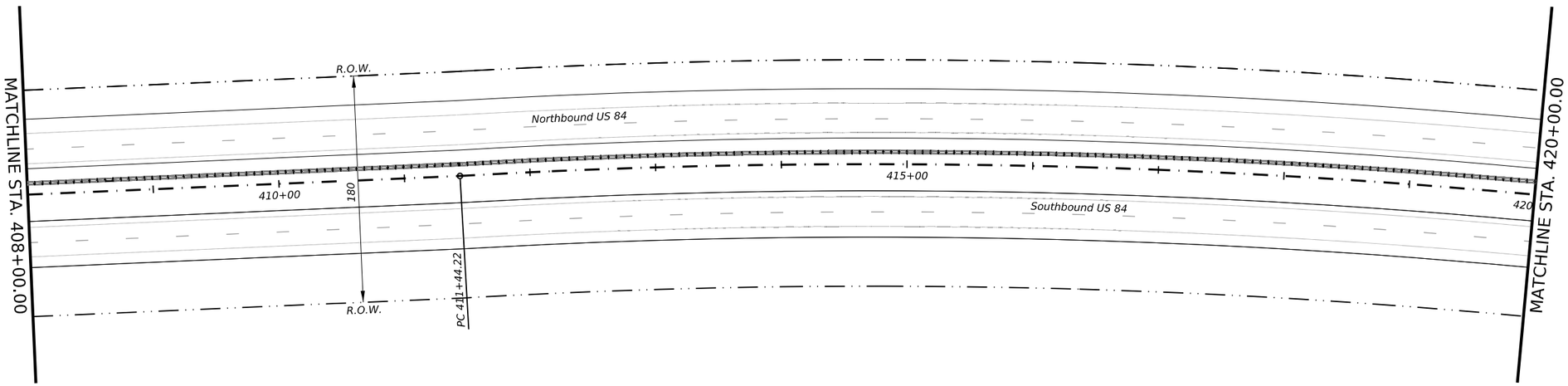

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Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 15 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		96

DATE: 2/2/2024 4:54:41 PM
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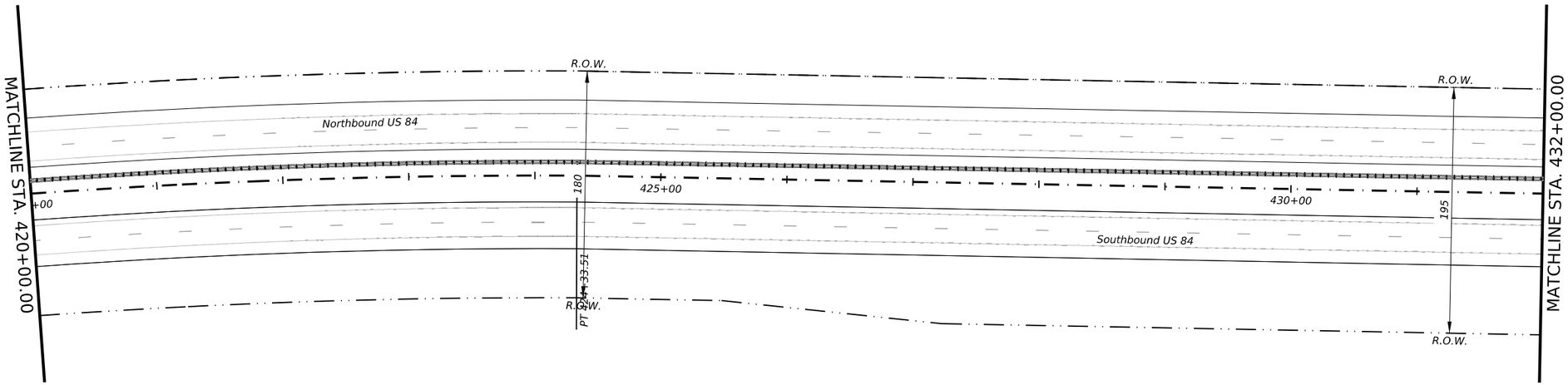

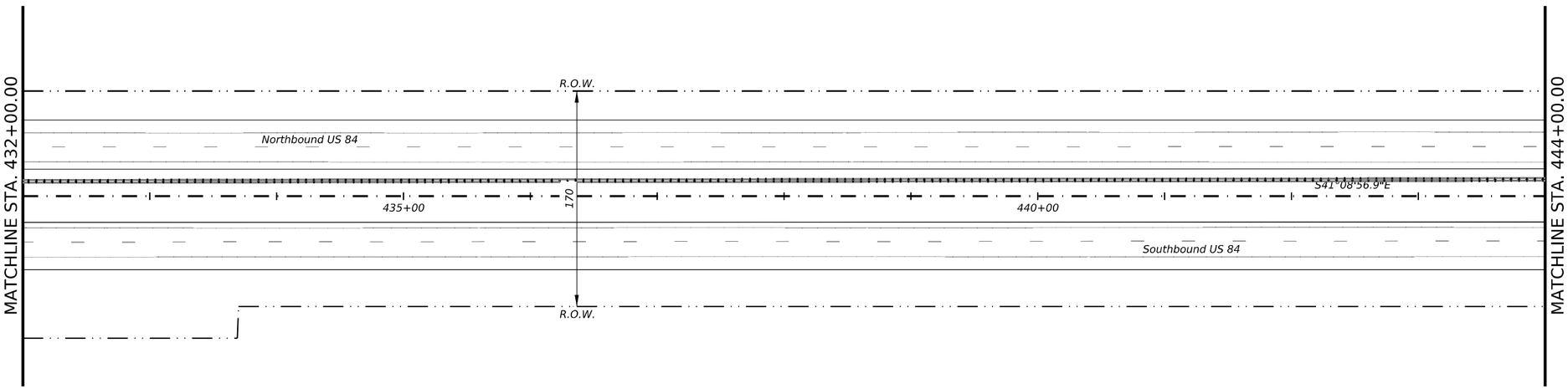

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Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 16 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		97

DATE: 2/2/2024 4:55:11 PM
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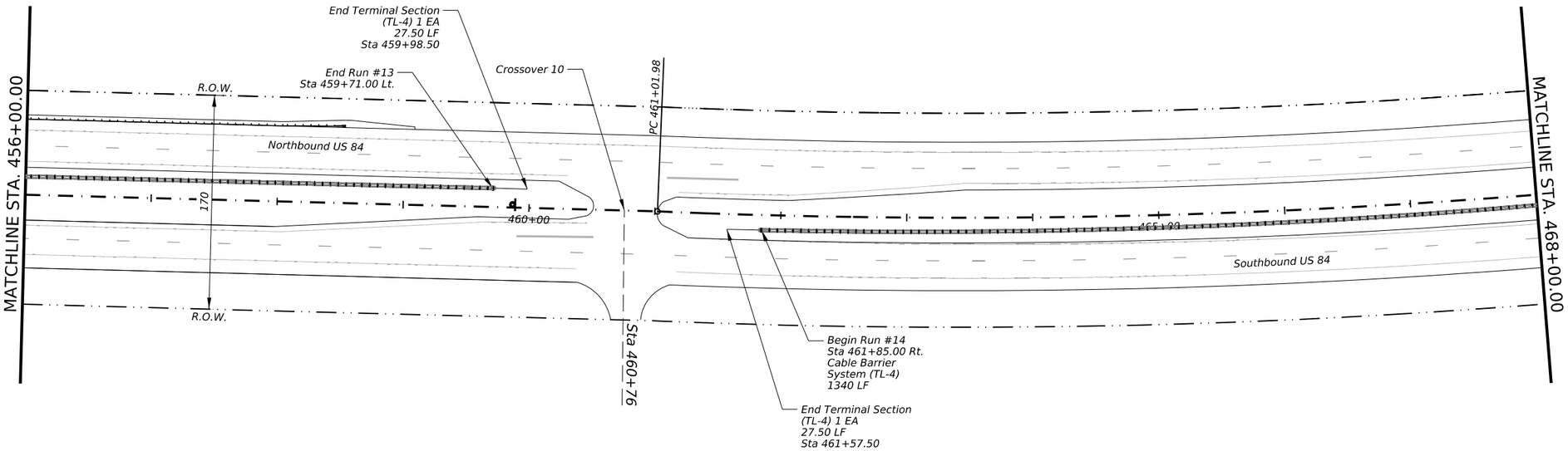

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 17 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		98

DATE: 2/2/2024 4:55:37 PM
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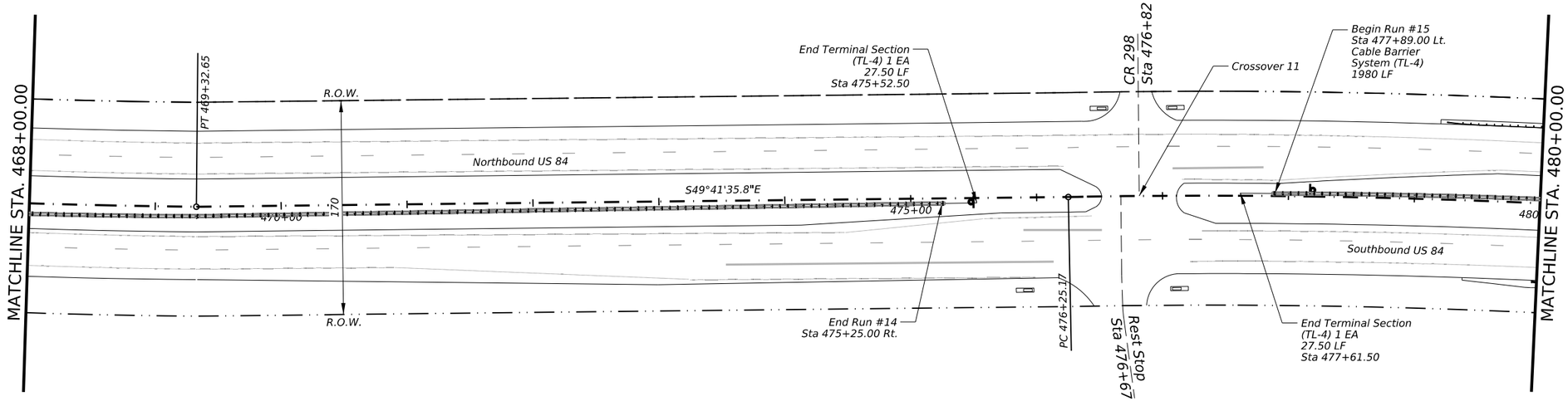

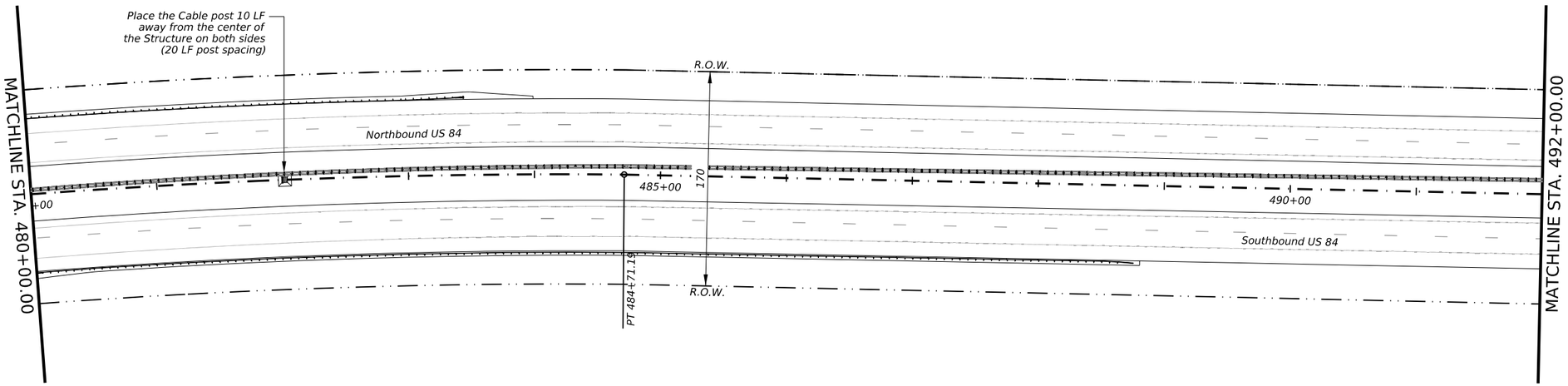

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 18 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		99

DATE: 2/2/2024 4:56:00 PM
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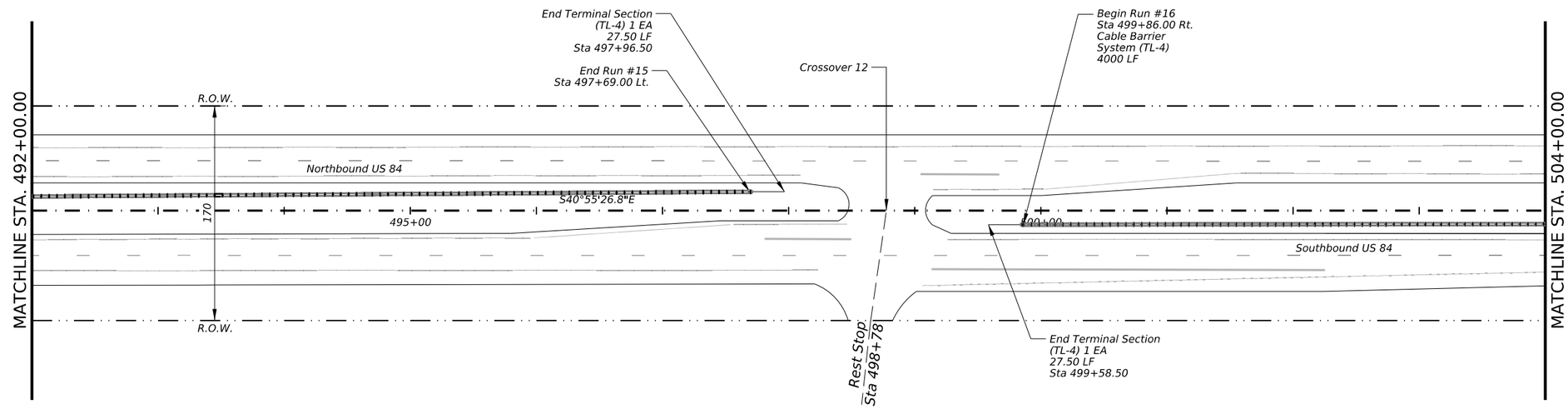

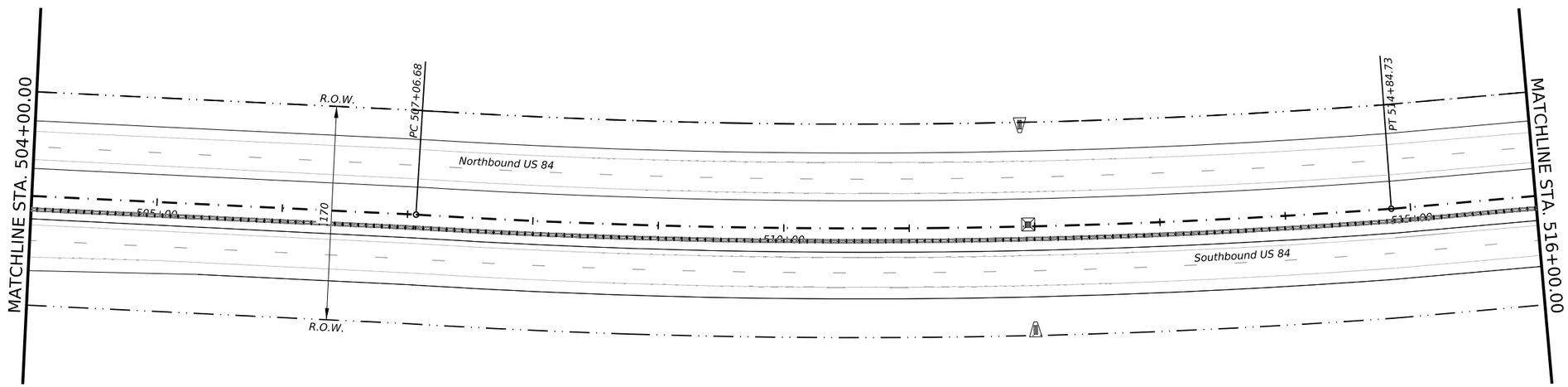

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 19 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		100

DATE: 2/2/2024 4:56:23 PM
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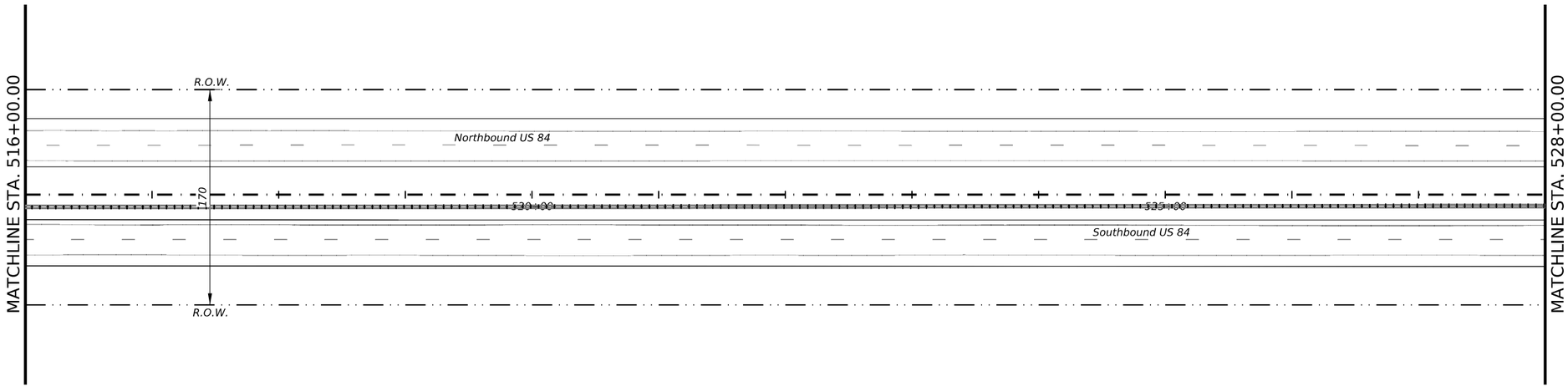

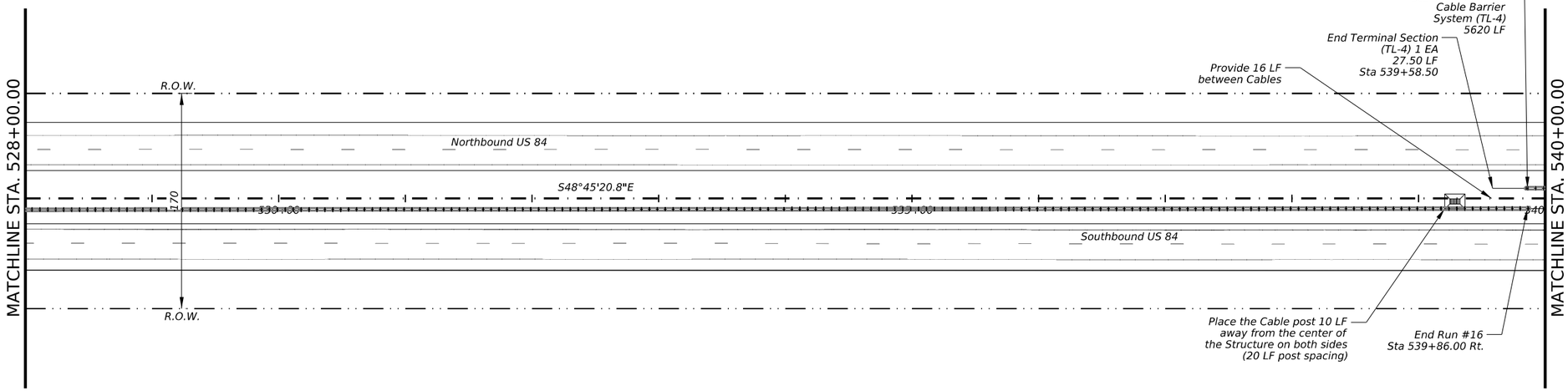

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 20 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		101

DATE: 2/2/2024 4:56:49 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011136/4 - Design/Plan Set/3. Roadway/US0084_RDW_PP_SOUTH.dgn

DW: CK: DW: CK:

CK:
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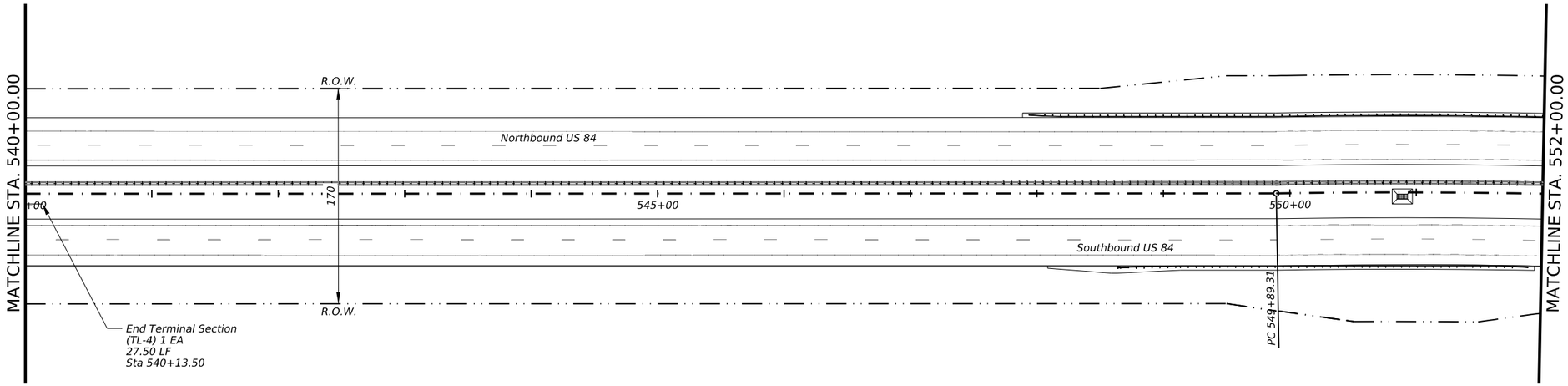
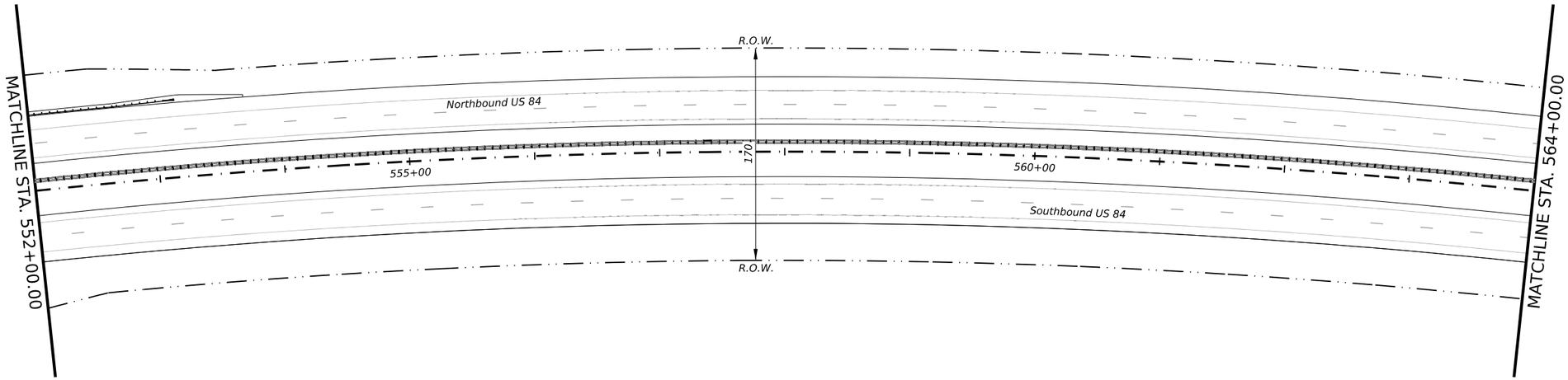
DW:





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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 21 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		102

DATE: 2/2/2024 4:57:17 PM
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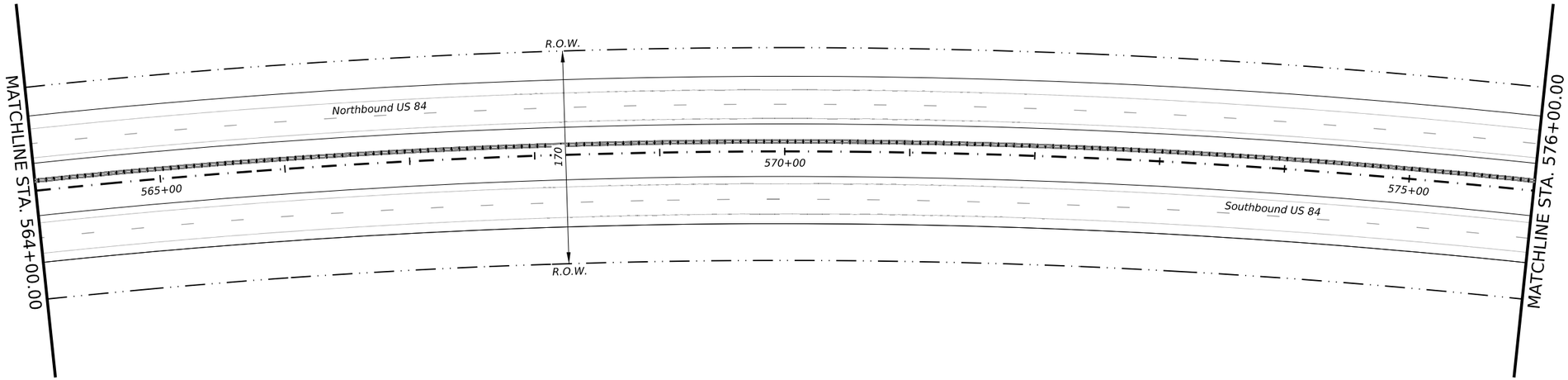

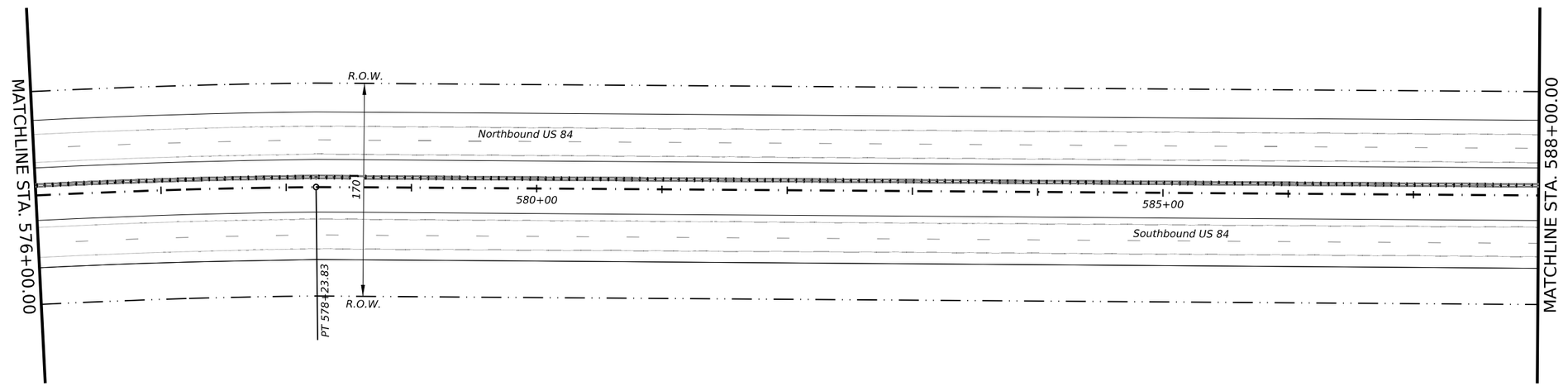

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 22 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		103

DATE: 2/2/2024 4:57:53 PM
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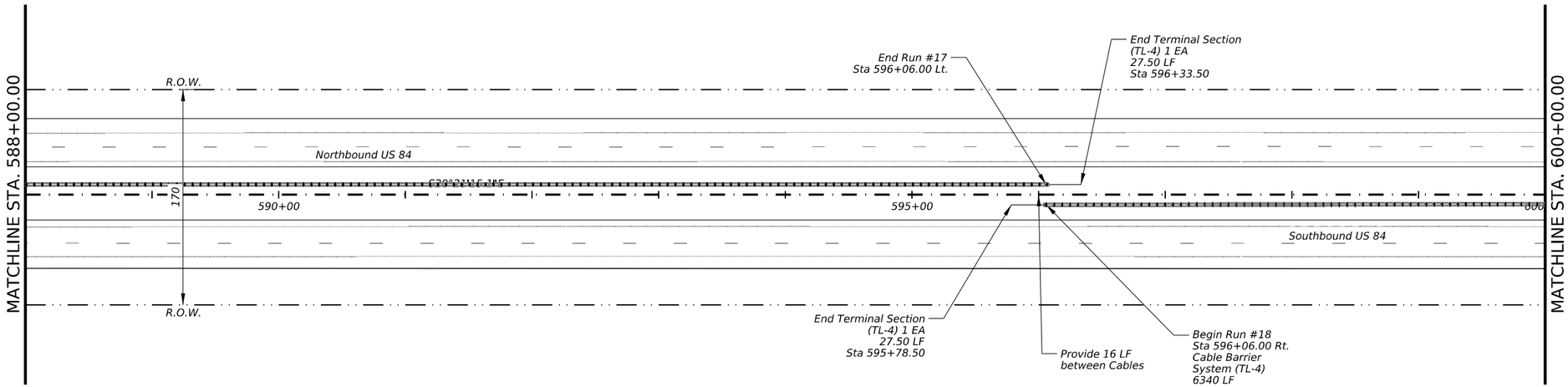

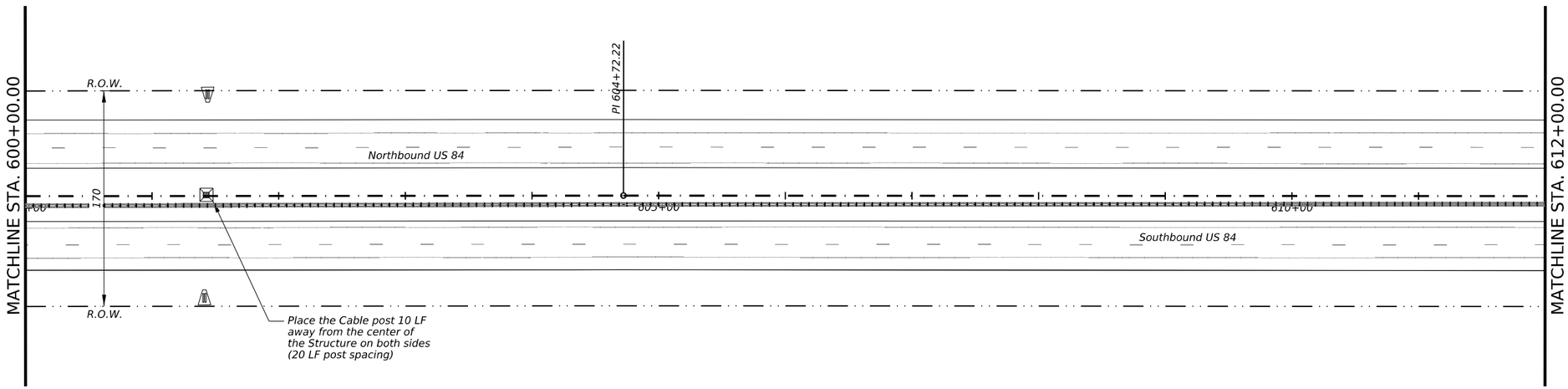

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 23 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		104

DATE: 2/2/2024 4:58:12 PM
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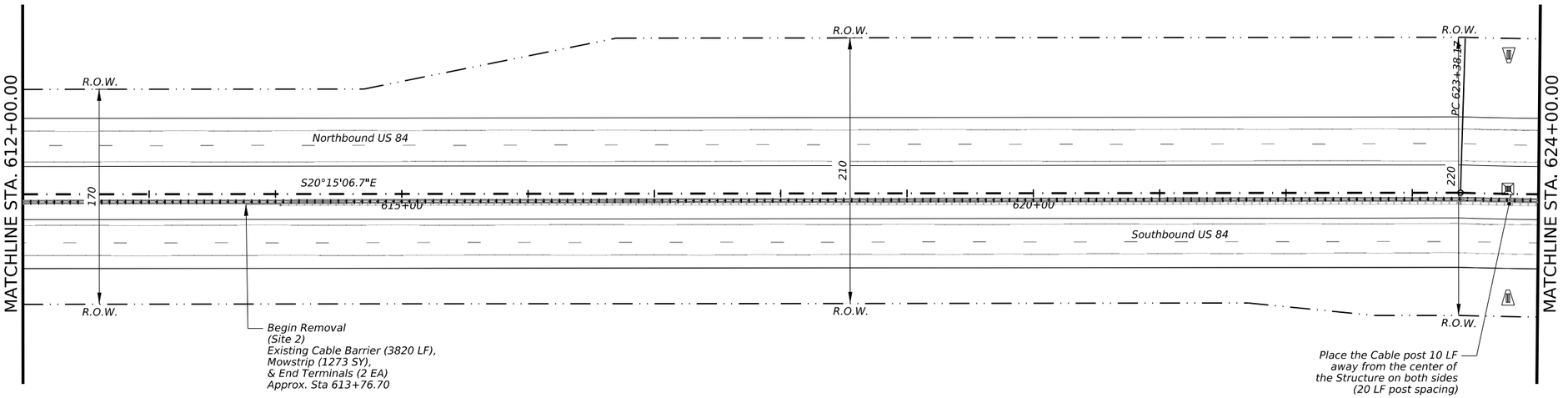

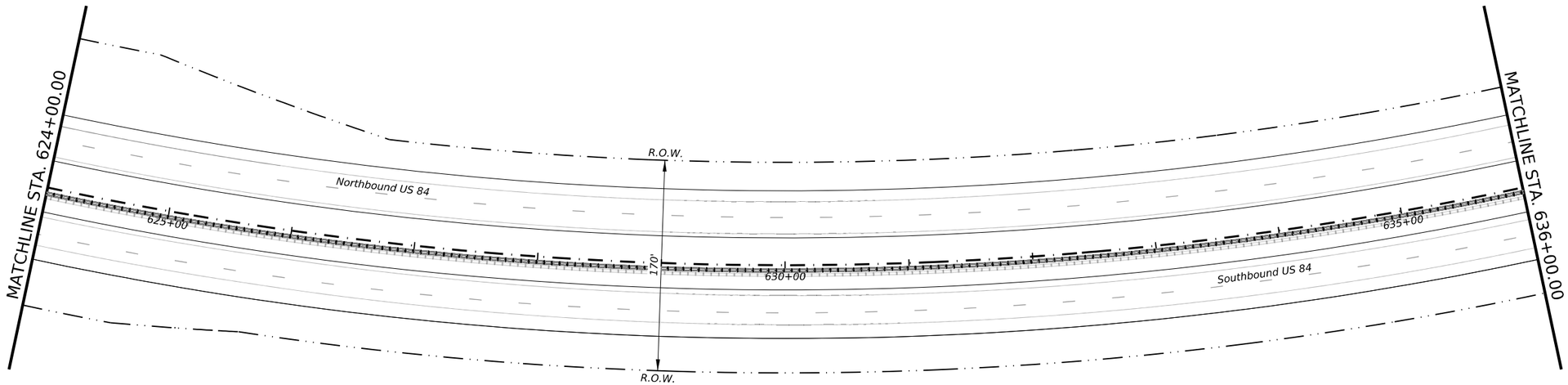

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 24 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		105

DATE: 2/2/2024 4:58:53 PM
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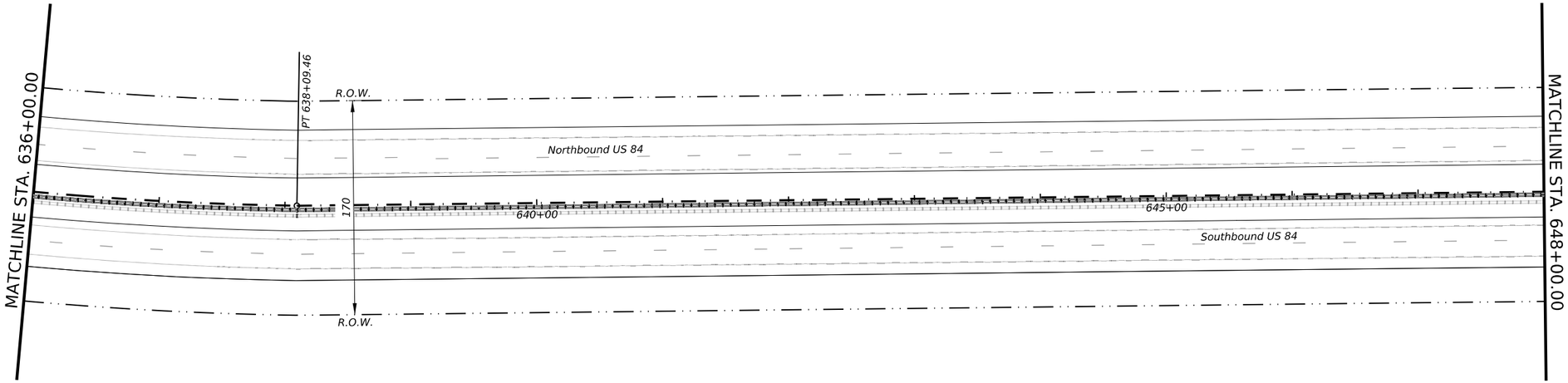

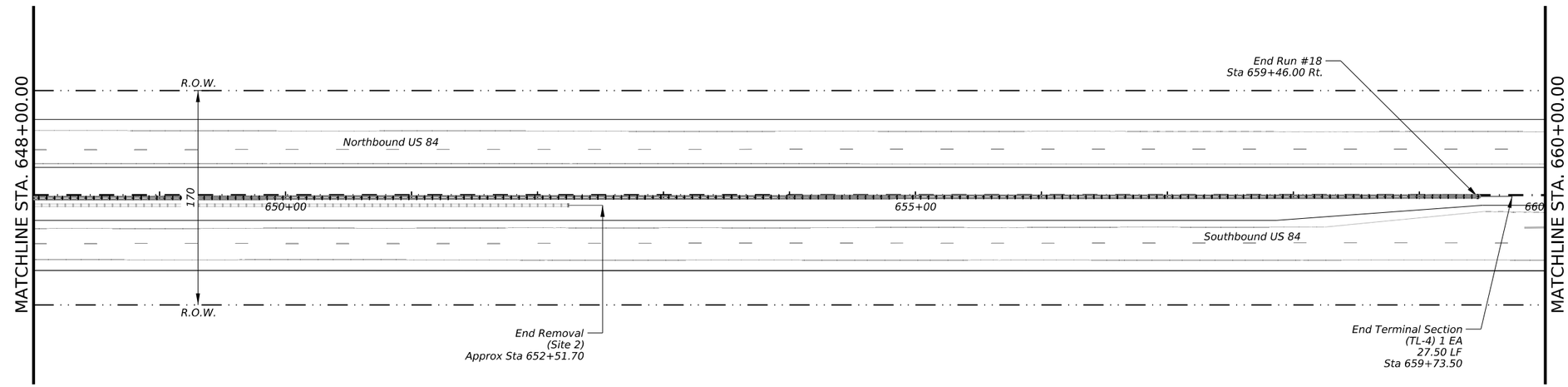

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 25 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		106

DATE: 2/2/2024 4:59:17 PM
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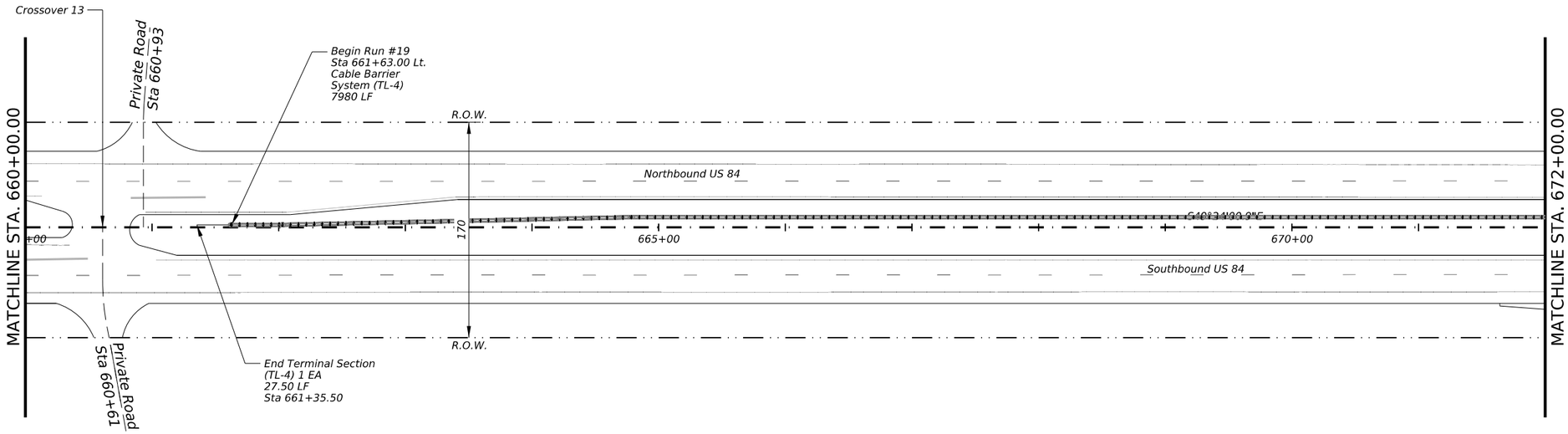

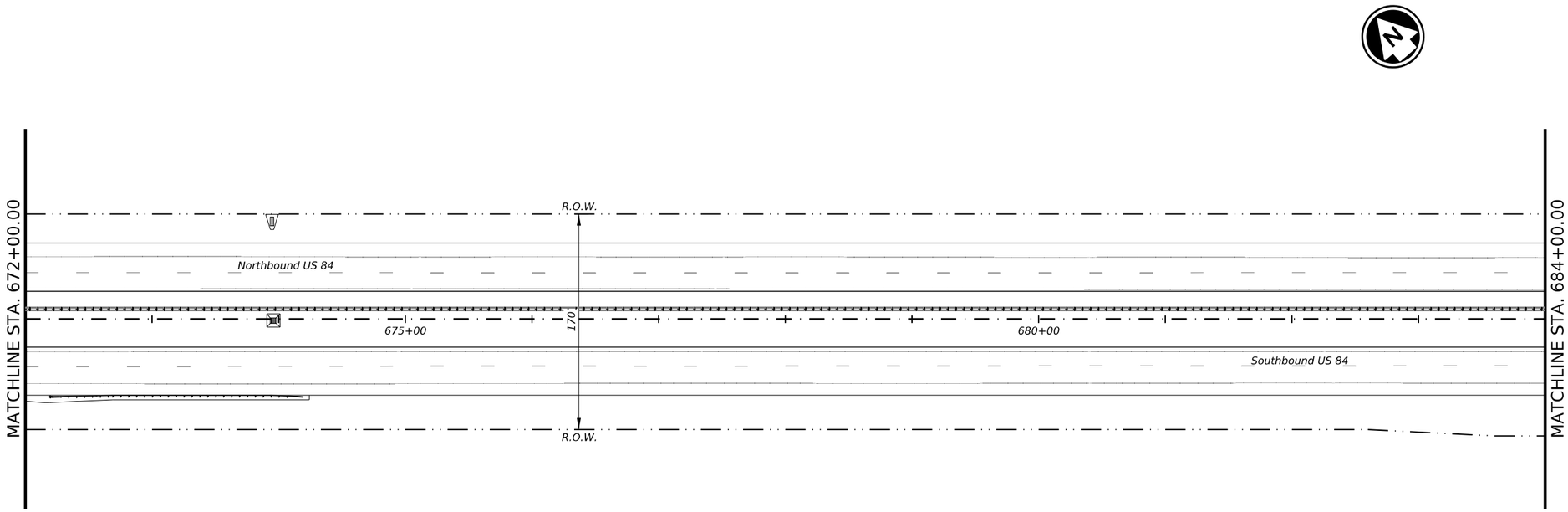

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 26 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		107

DATE: 2/2/2024 5:00:19 PM
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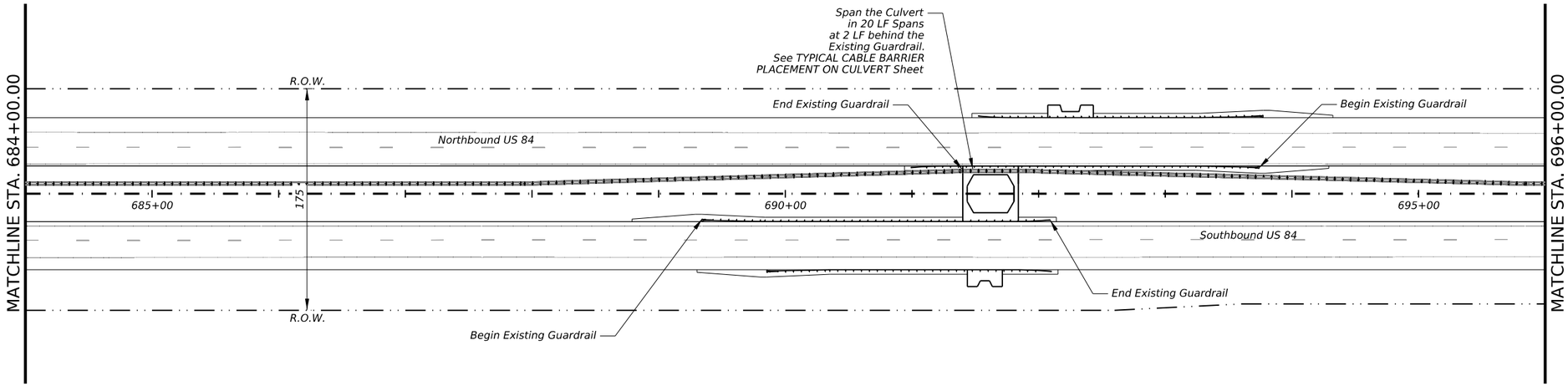

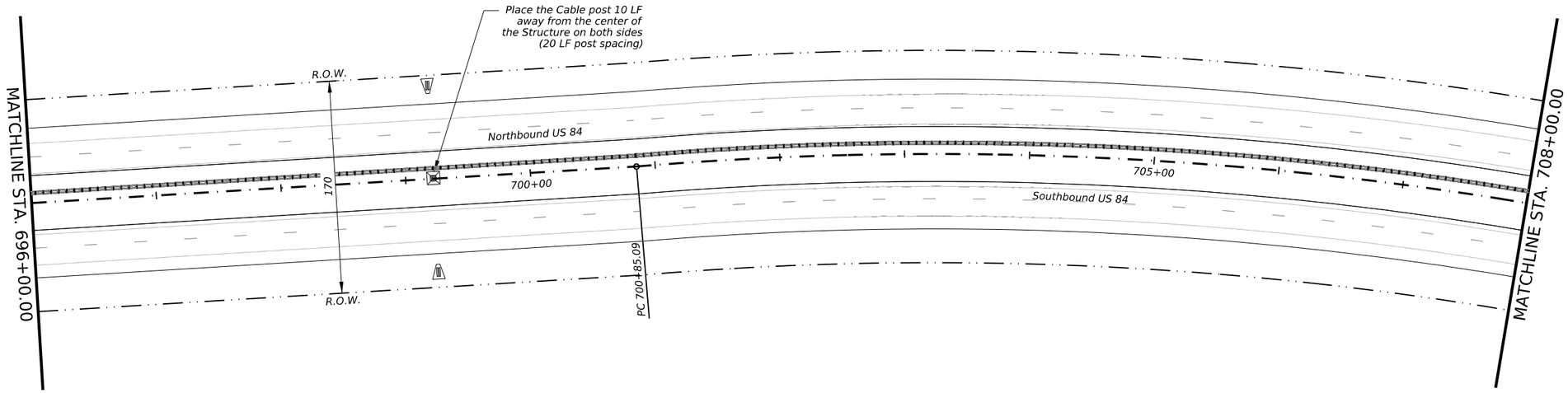

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 27 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		108

DATE: 2/2/2024 5:00:42 PM
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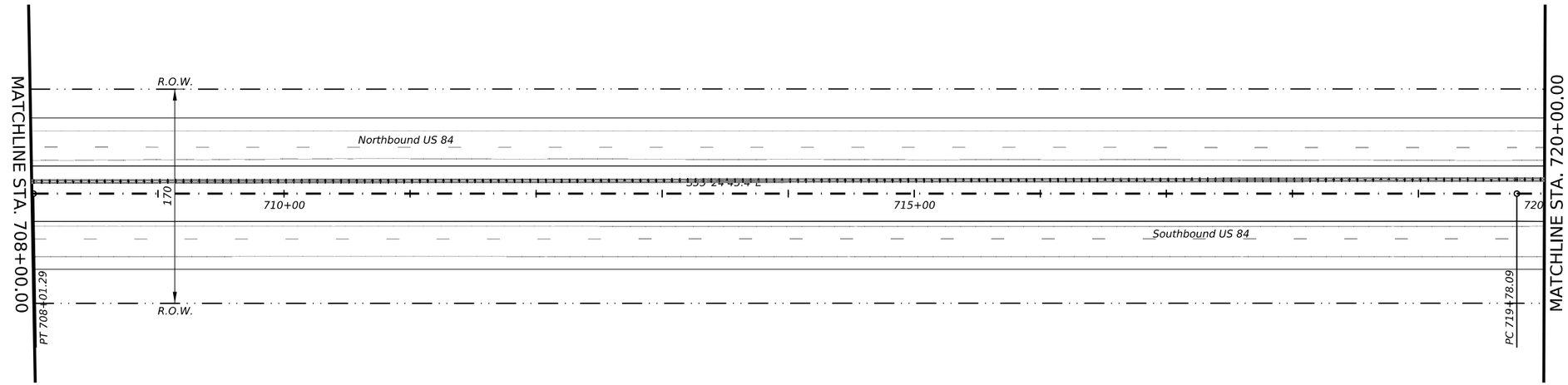

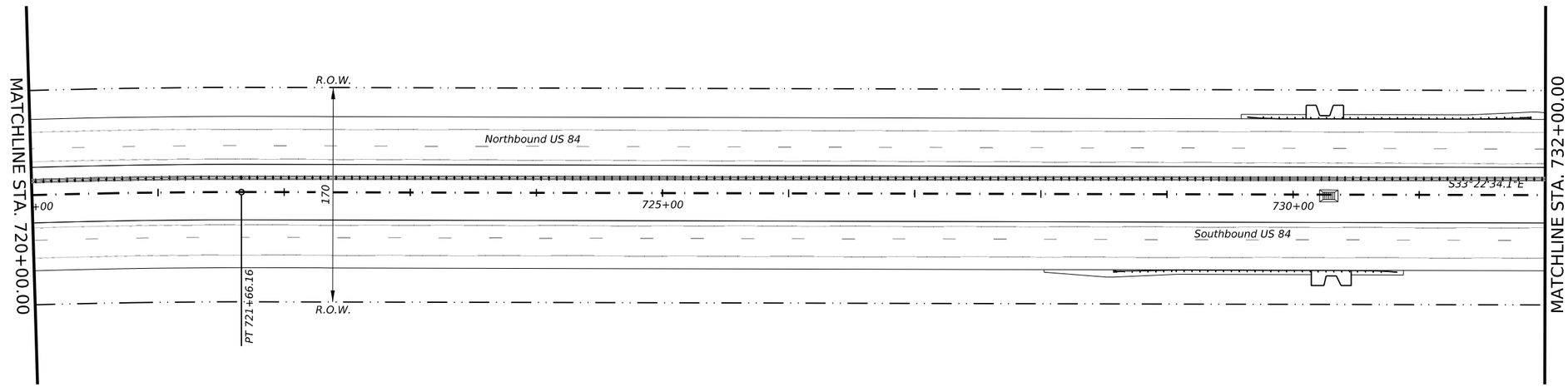

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 28 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		109

DATE: 2/2/2024 5:01:07 PM
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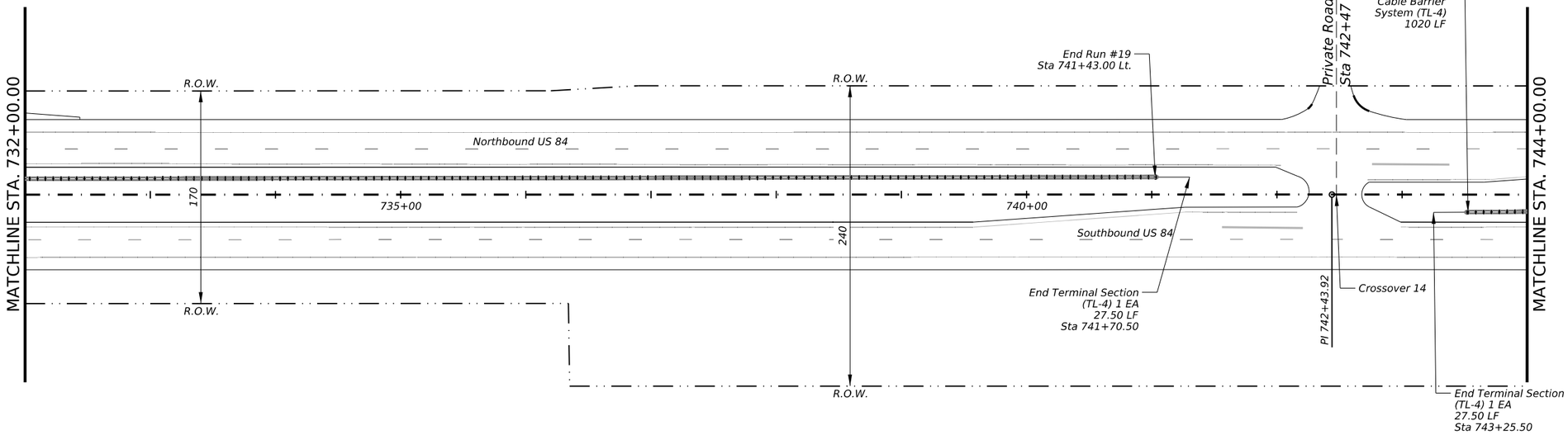

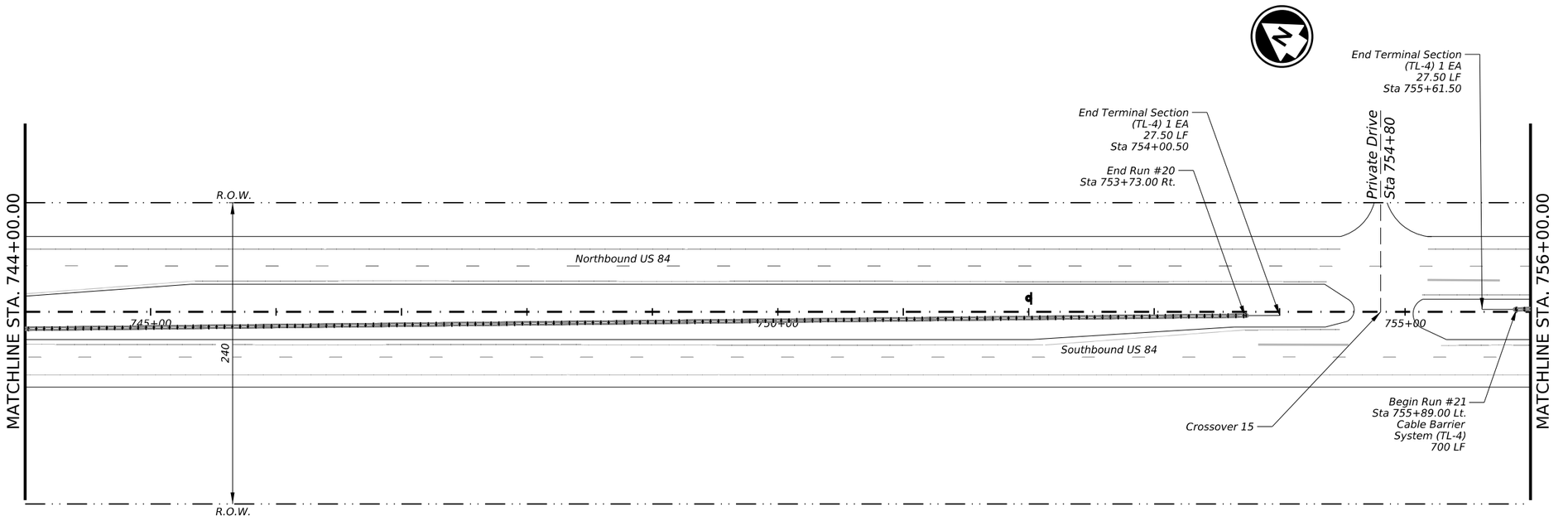

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 29 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		110

DATE: 2/2/2024 5:01:33 PM
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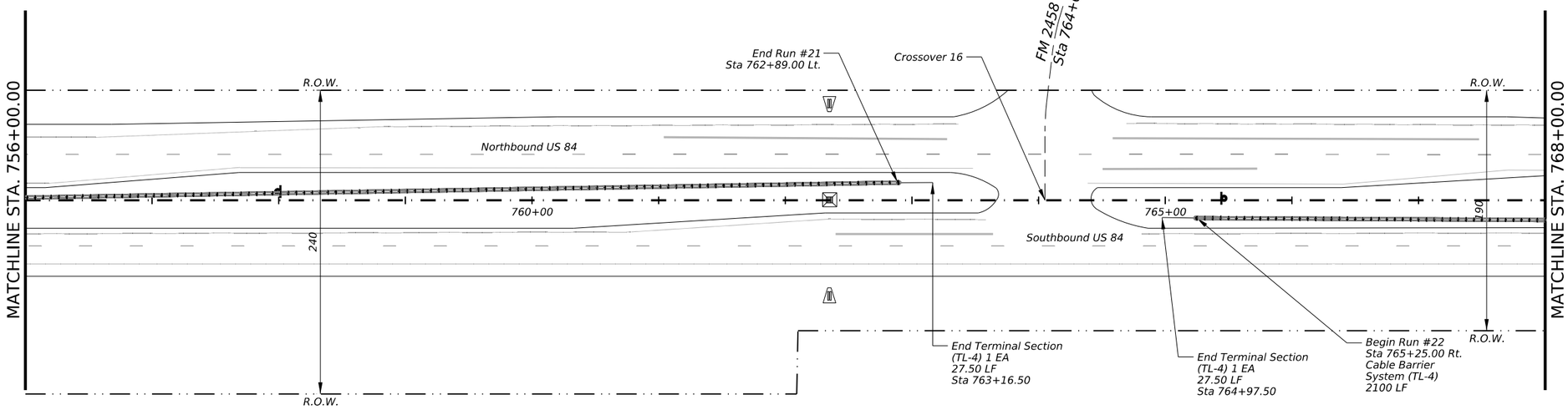

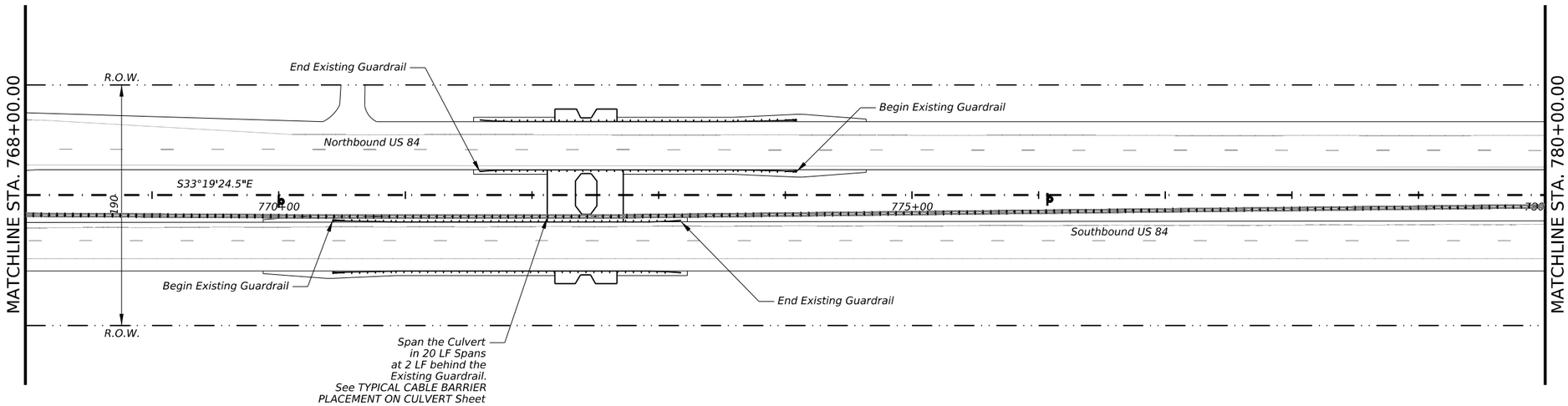

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 30 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		111

DATE: 2/2/2024 5:02:20 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_SOUTH.dgn

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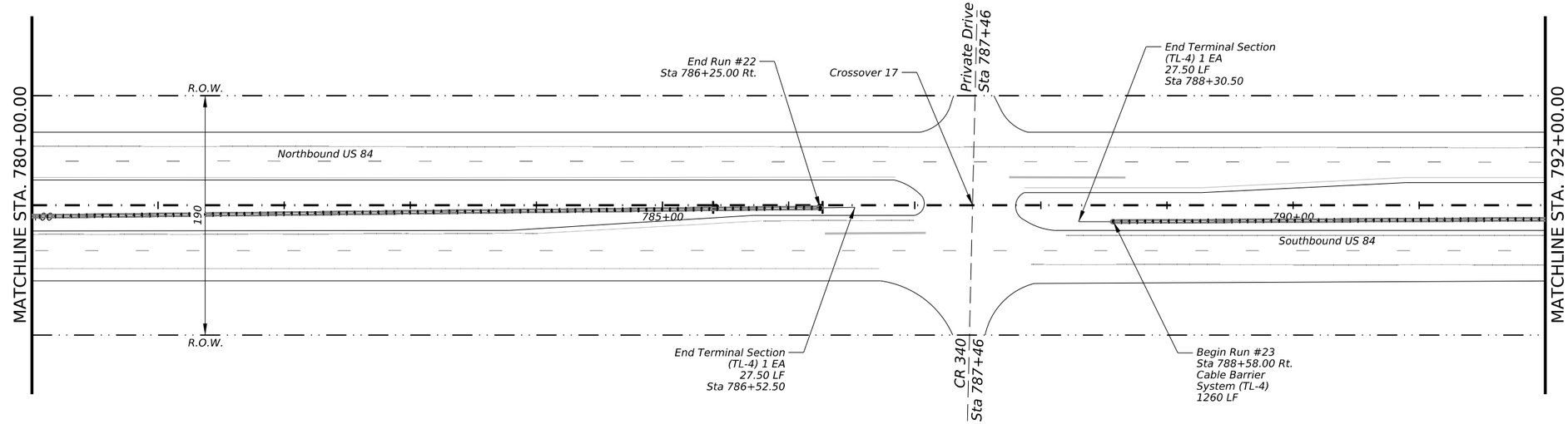

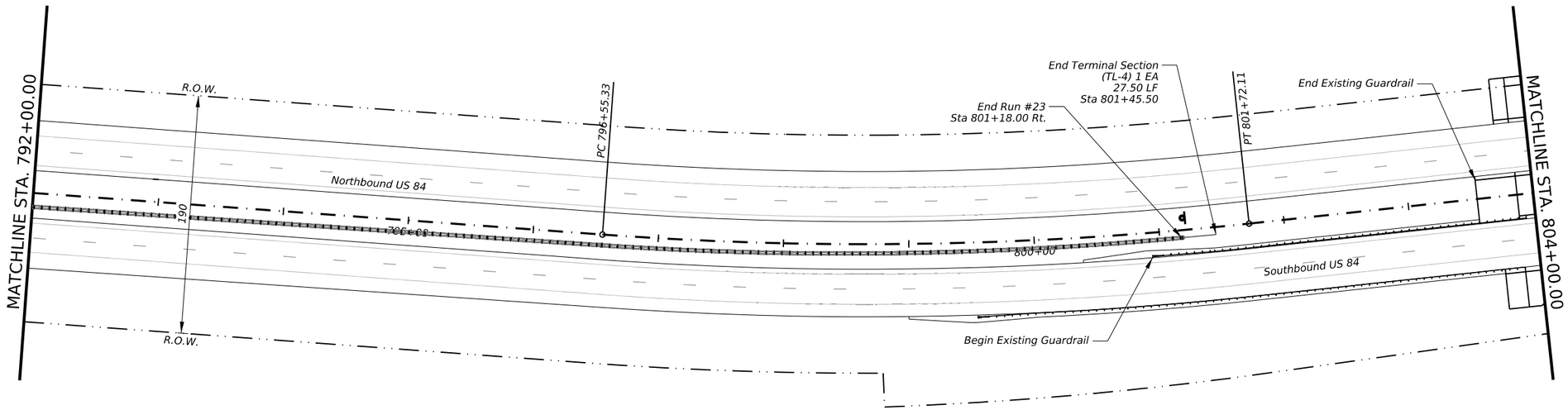

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Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 31 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		112

DATE: 2/2/2024 5:02:58 PM
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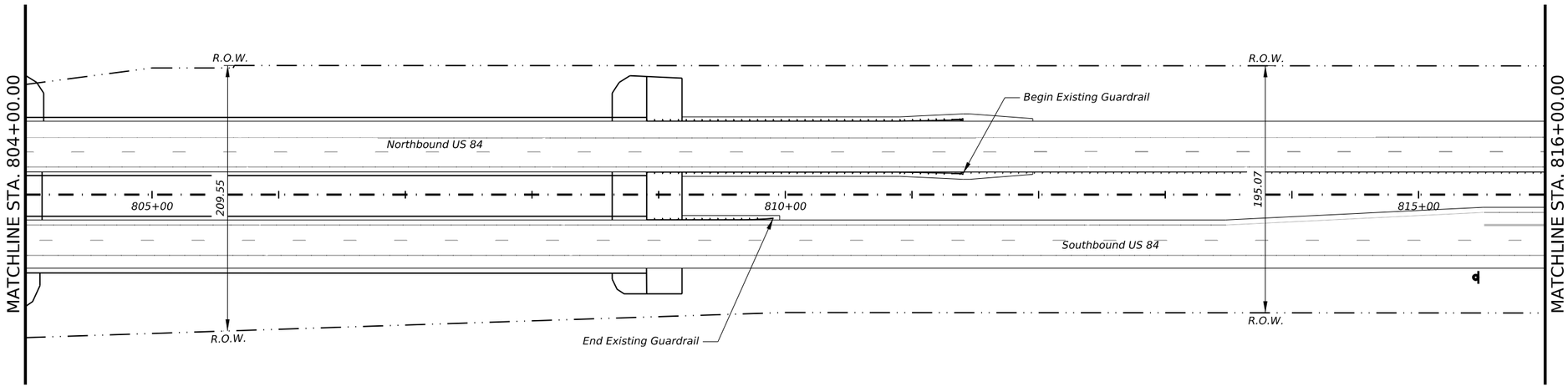

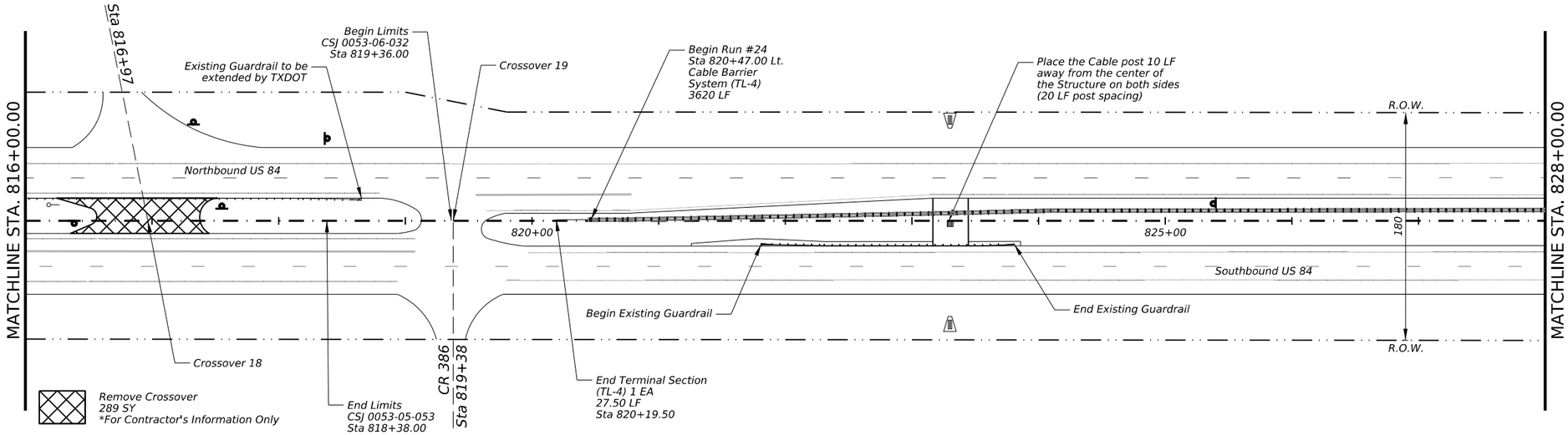

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 32 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		113

DATE: 2/2/2024 5:03:25 PM
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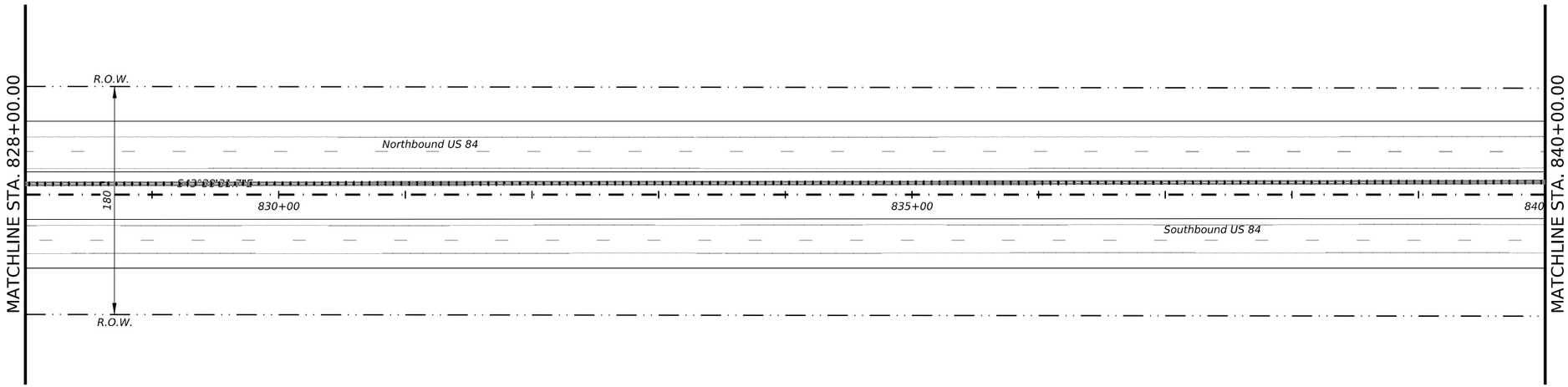

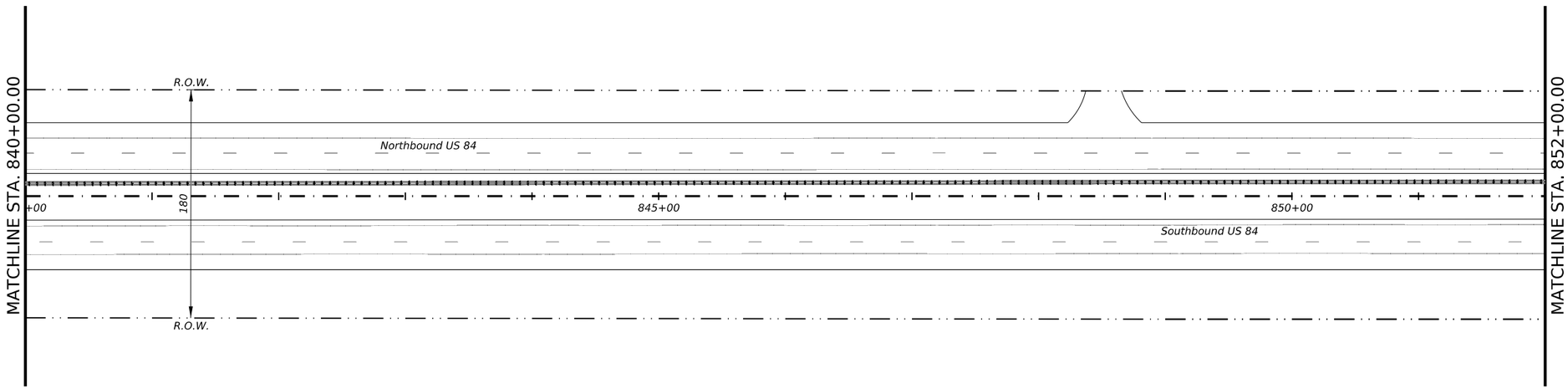

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 33 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		114

DATE: 2/2/2024 5:03:50 PM
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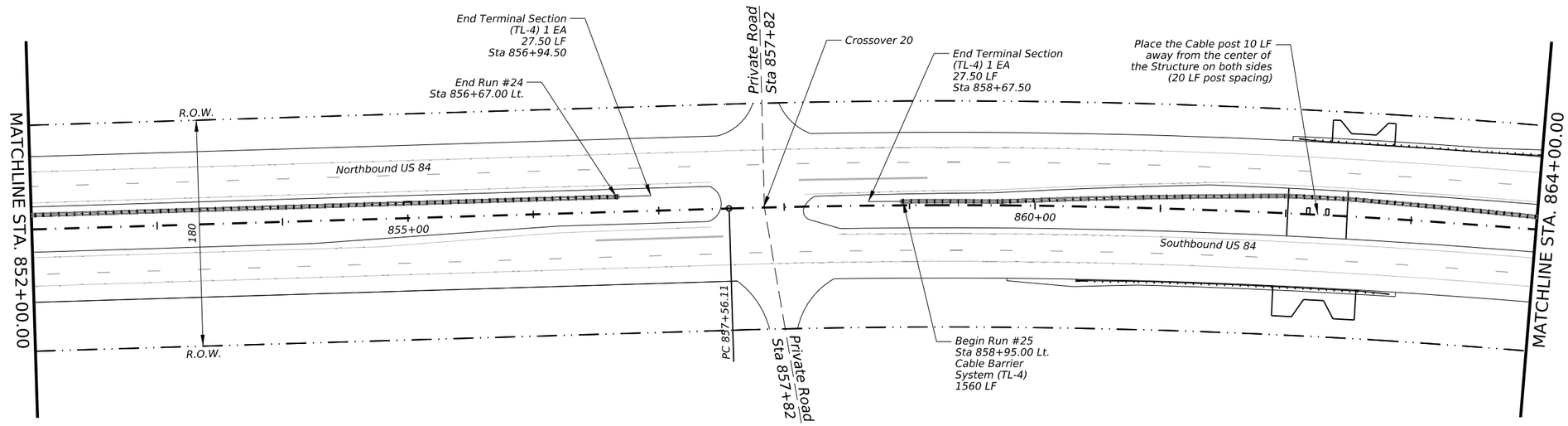

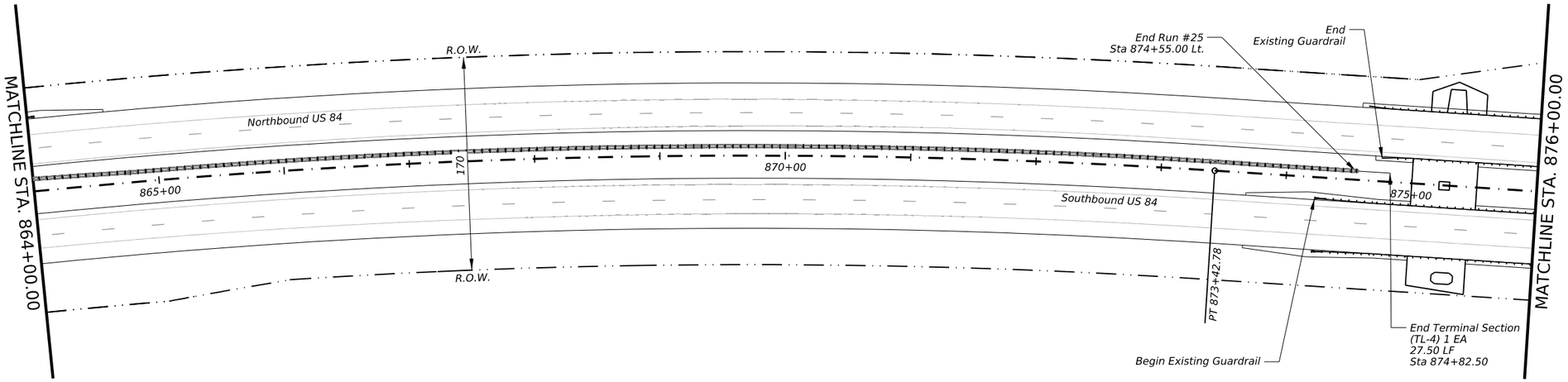

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STATE OF TEXAS

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 34 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		115

DATE: 2/2/2024 5:04:20 PM
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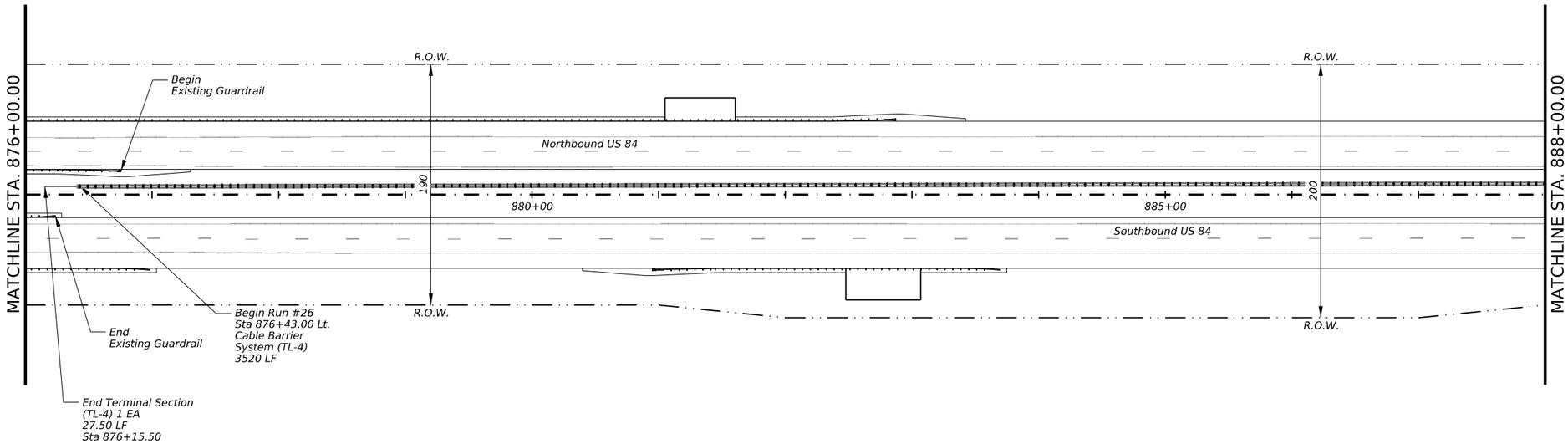

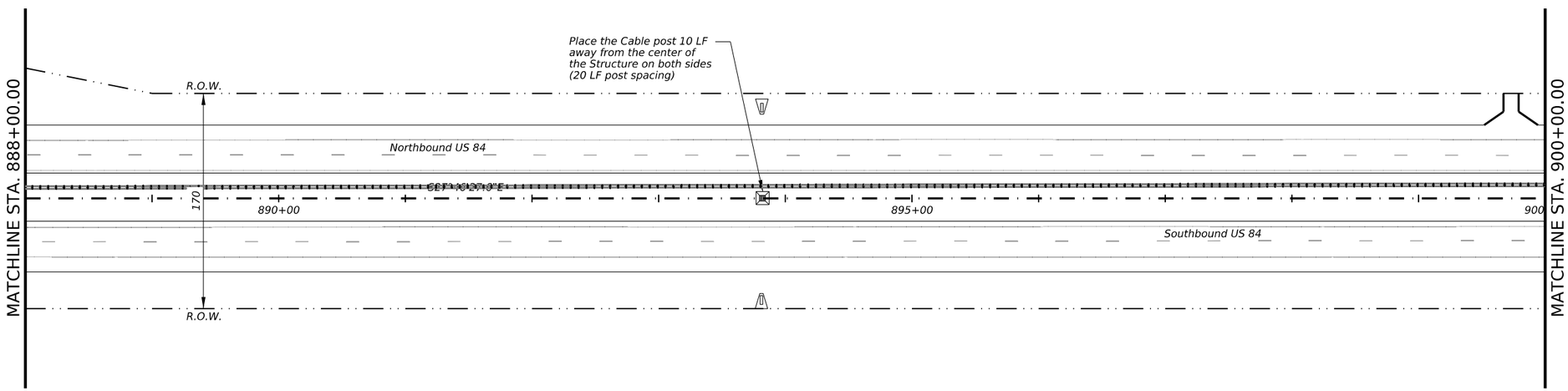

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 35 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		116

DATE: 2/2/2024 5:04:44 PM
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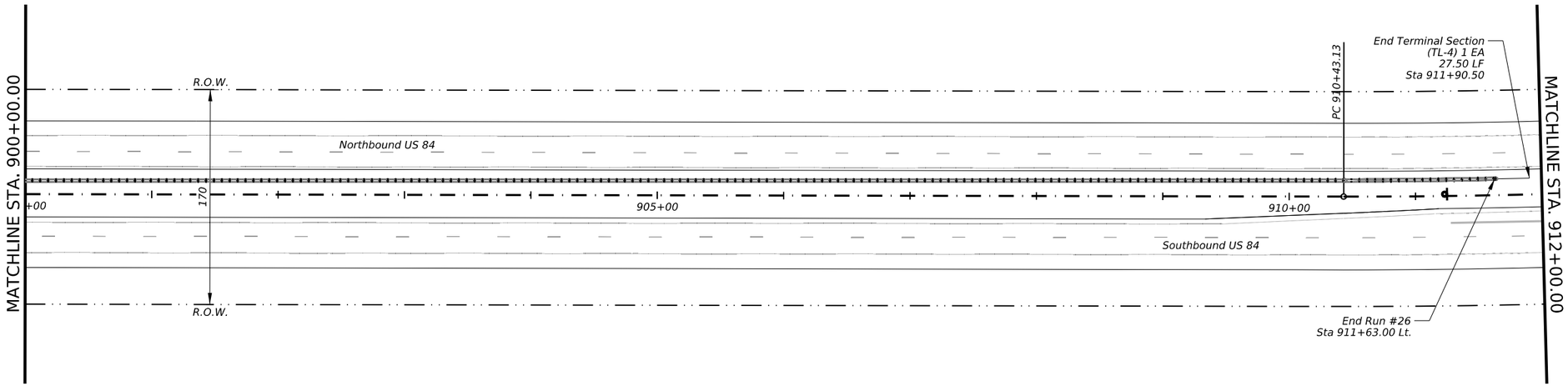

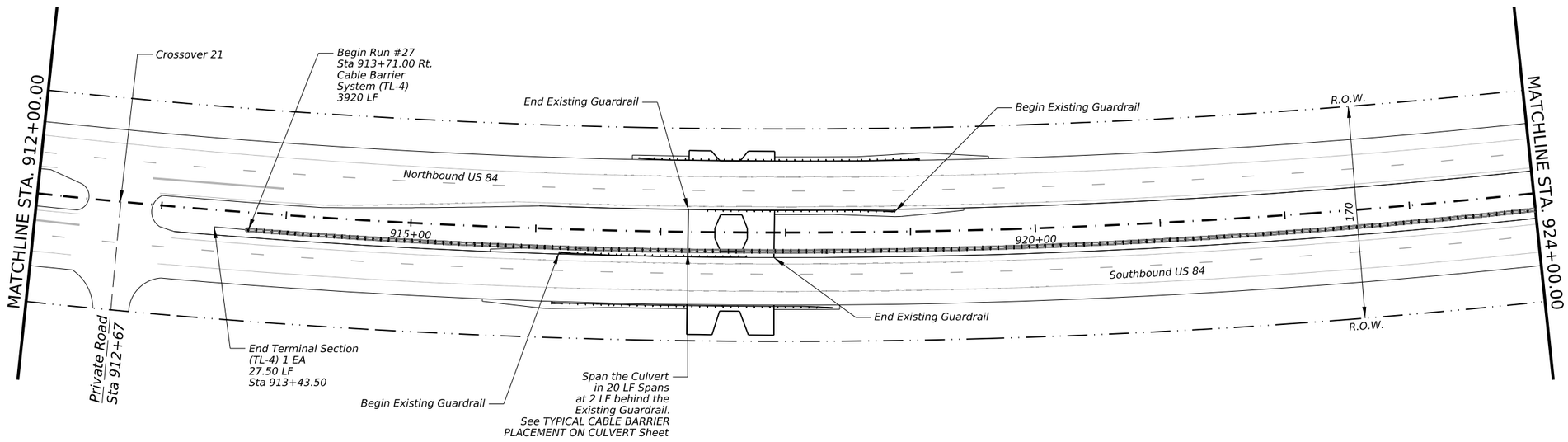

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Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 36 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		117

DATE: 2/2/2024 5:05:05 PM
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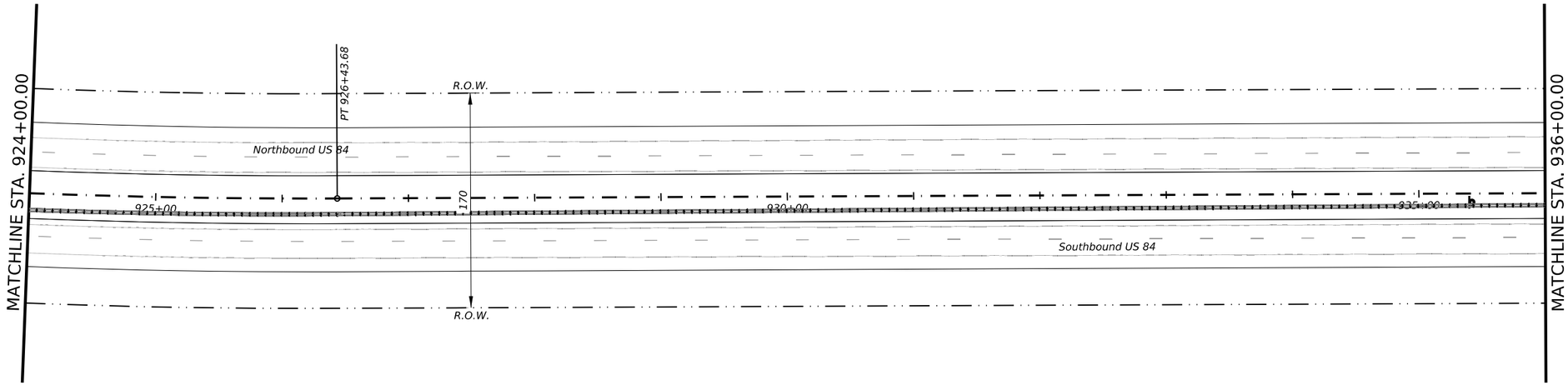

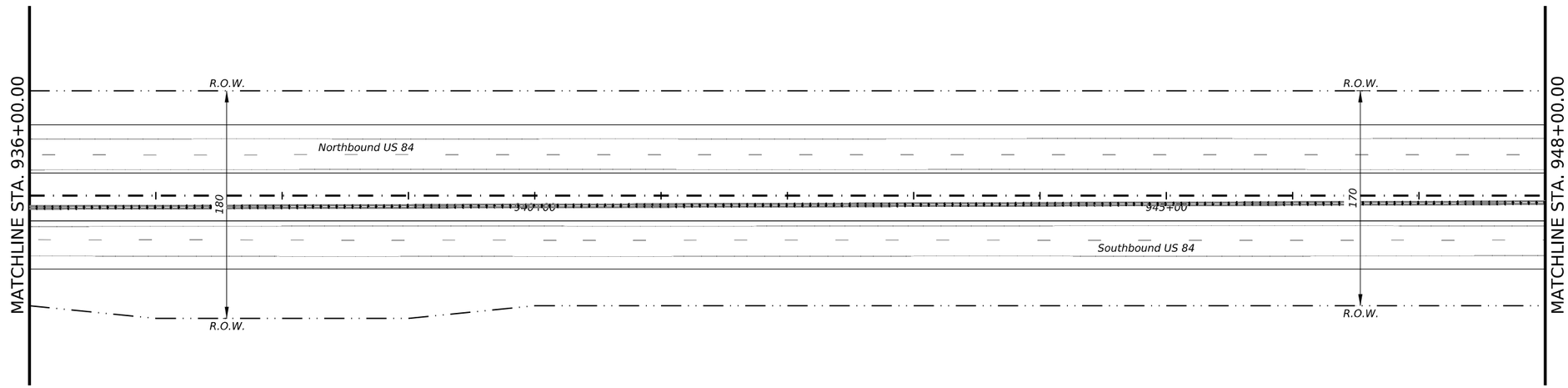

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Texas Department of Transportation

US 84, ETC.

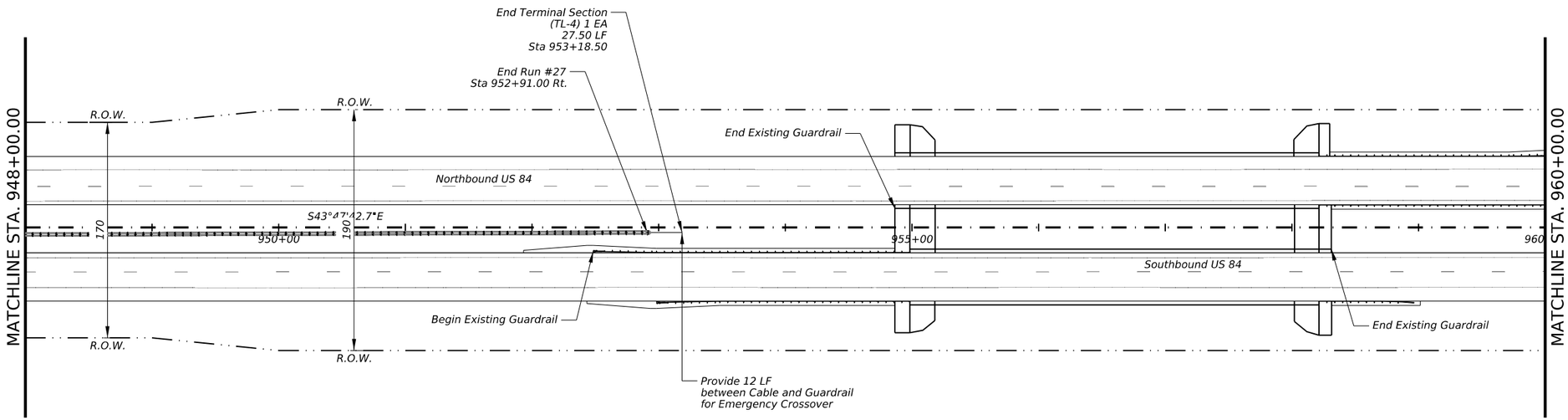
PLAN VIEW
(US 84 South)
SCALE: 1"=100'

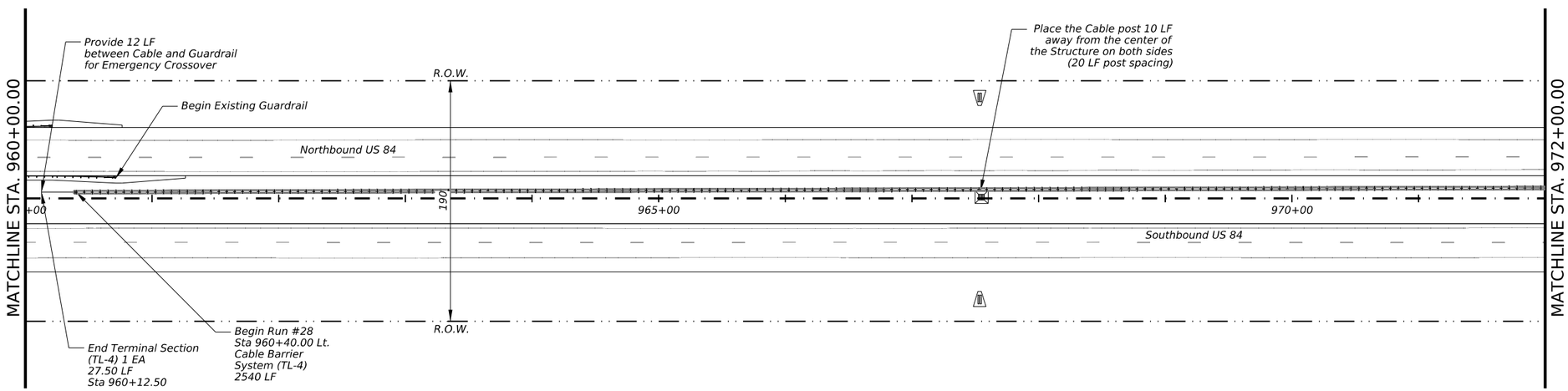
SHEET 37 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		118

DATE: 2/2/2024 5:05:30 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_SOUTH.dgn

DW: CK: DW: CK:





STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		119

DATE: 2/2/2024 5:05:53 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_SOUTH.dgn

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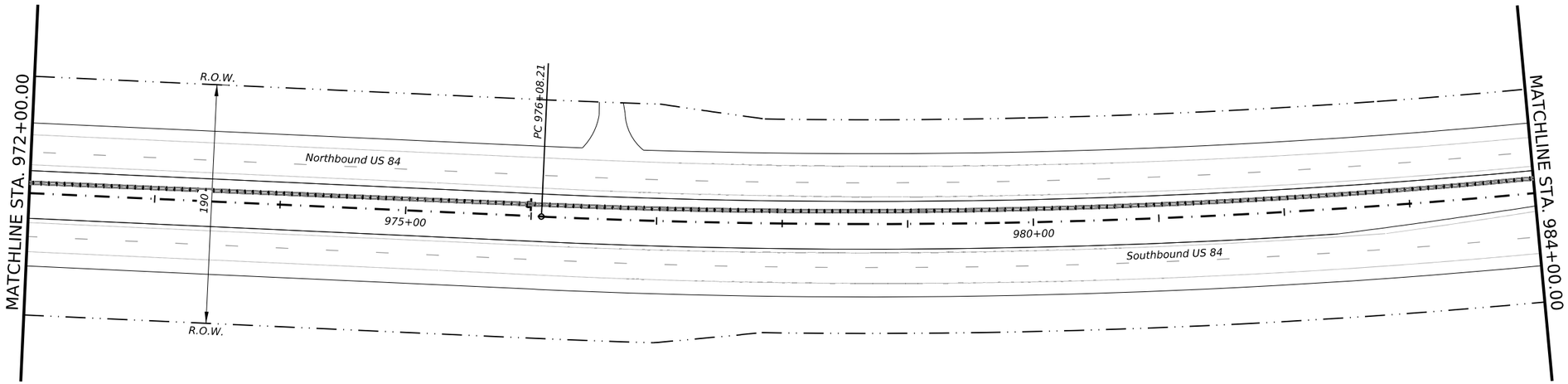

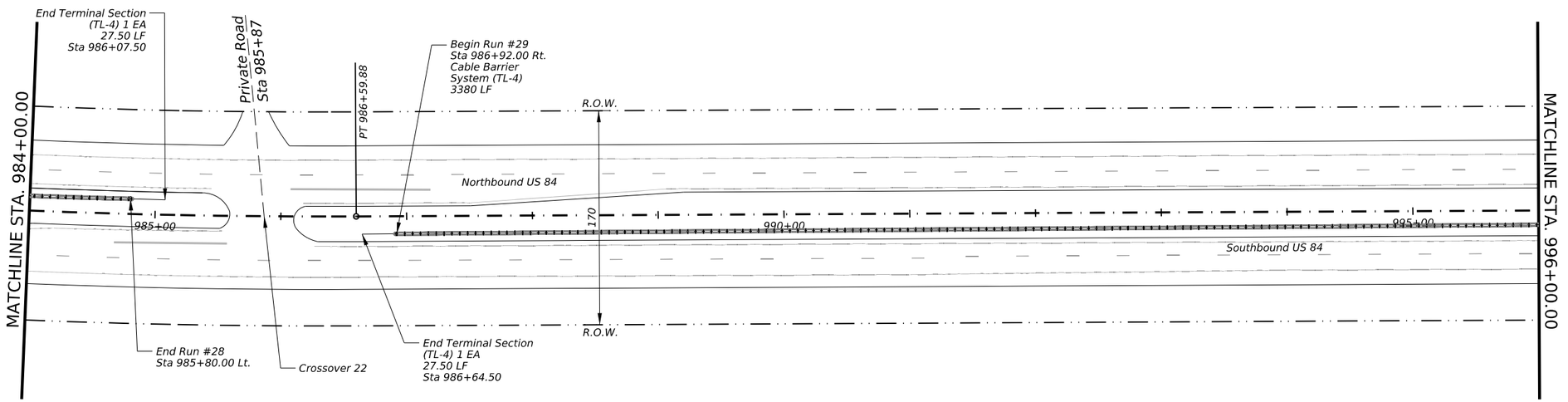

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 39 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		120

DATE: 2/2/2024 5:06:19 PM
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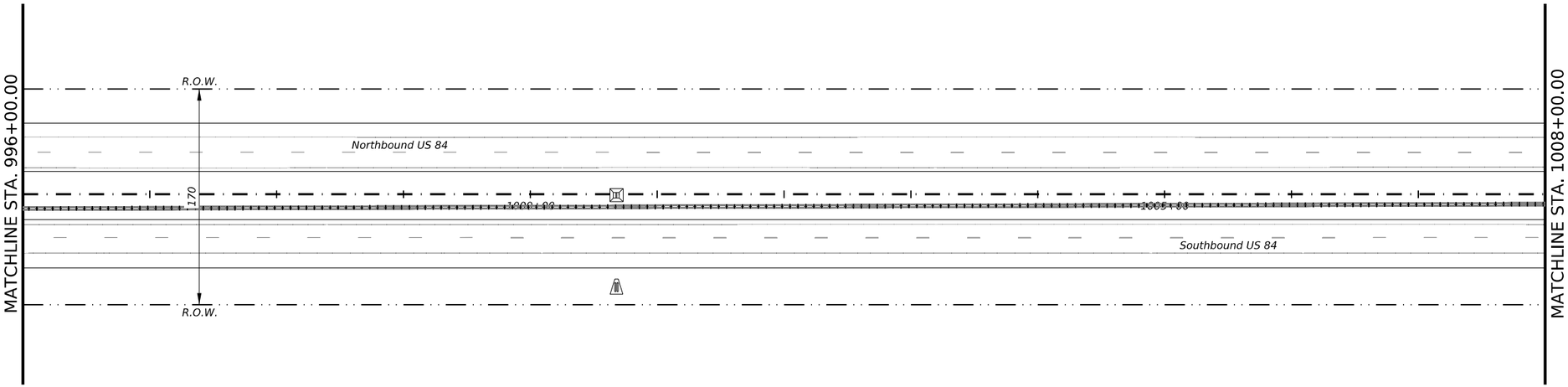

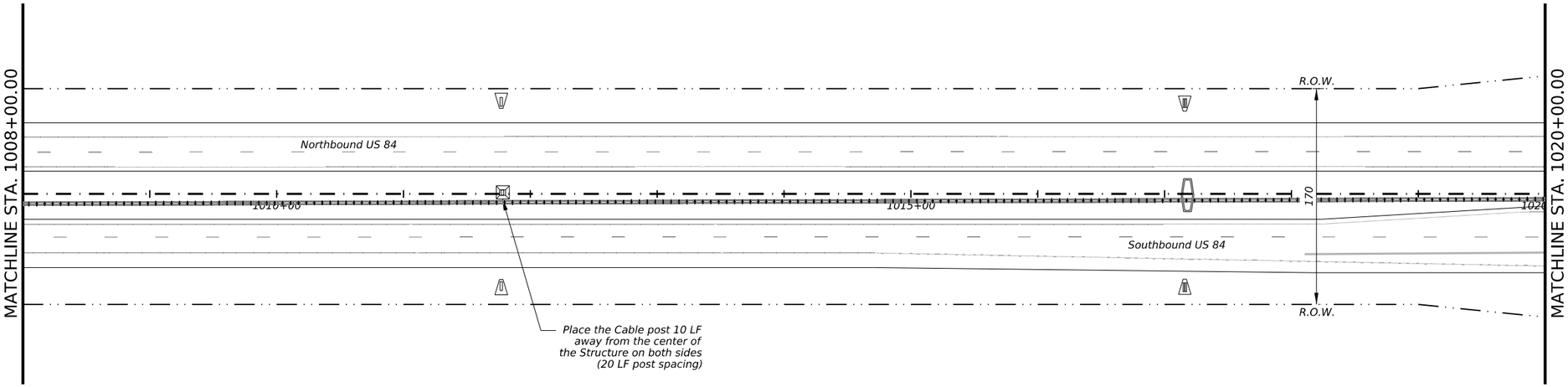

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South0
SCALE: 1"=100'

SHEET 40 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		121

DATE: 2/2/2024 5:07:32 PM
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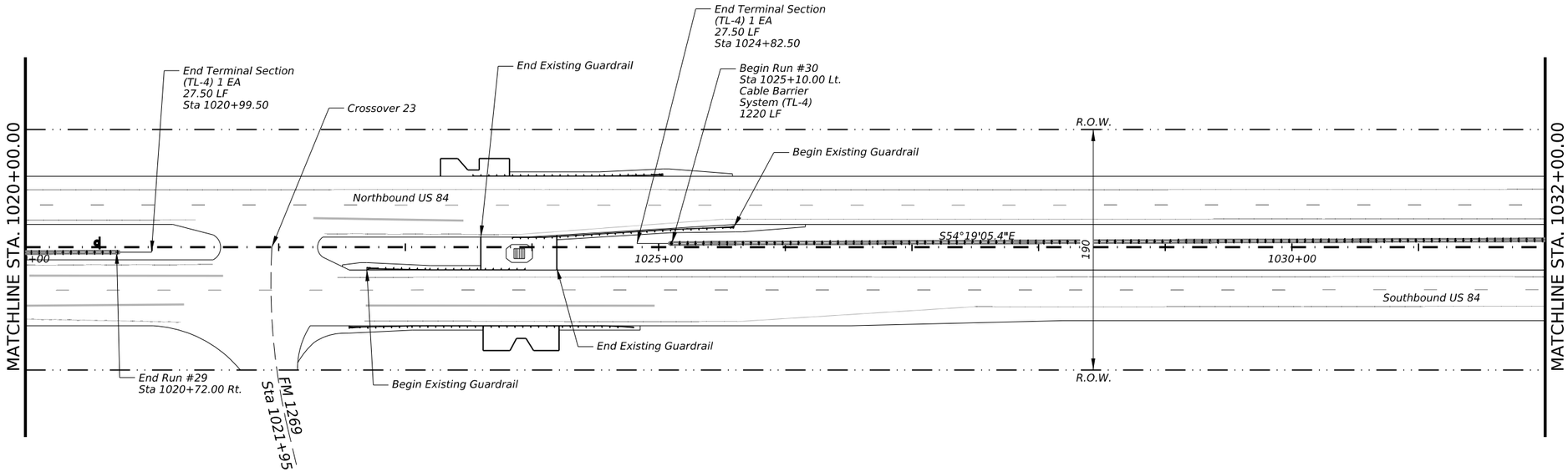

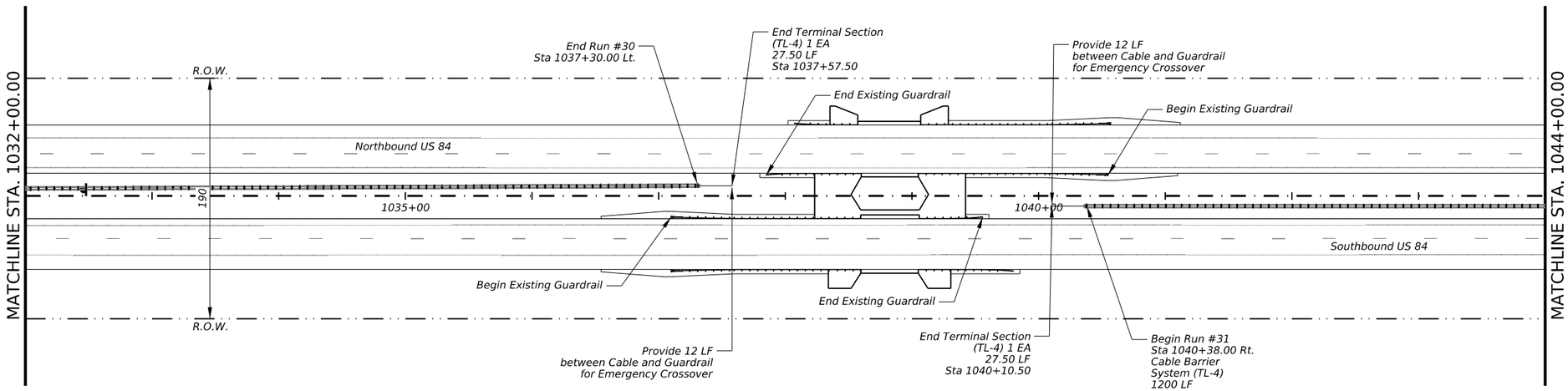

STATE OF TEXAS
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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 41 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.

DIST	COUNTY	SHEET NO.
LBB	LUBBOCK, ETC.	122

DATE: 2/2/2024 5:08:08 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_SOUTH.dgn

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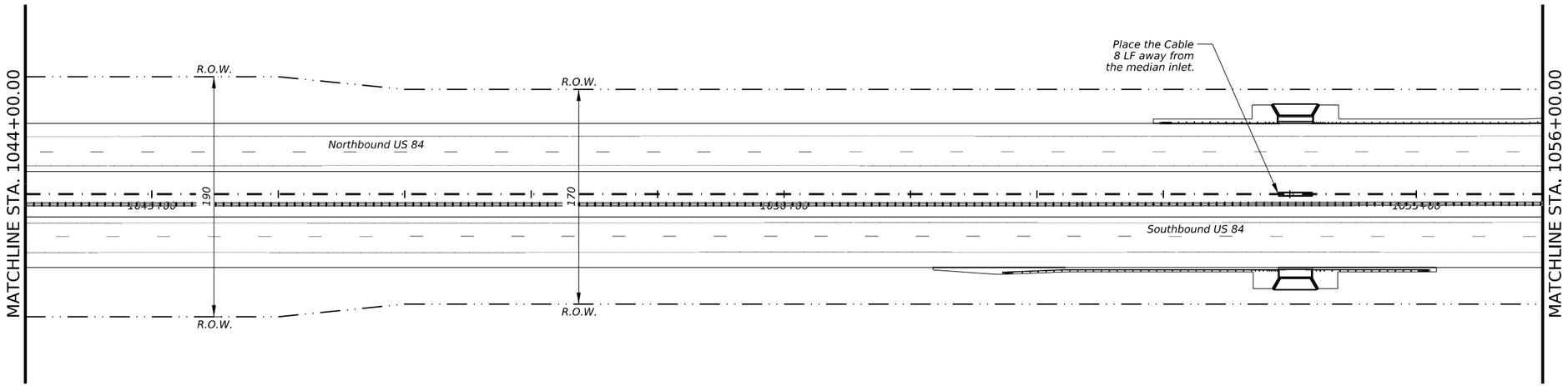

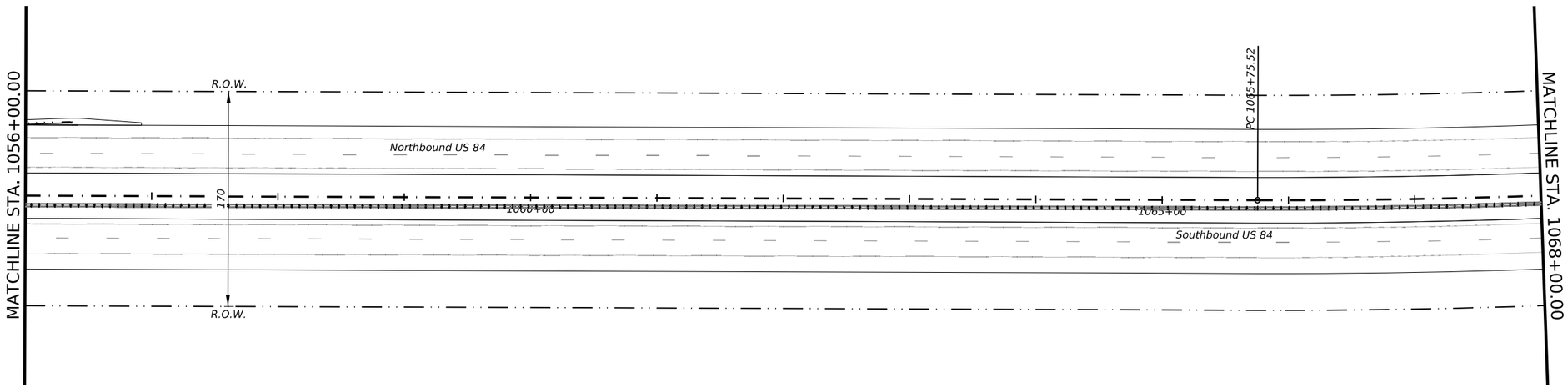

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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		123

DATE: 2/2/2024 5:08:40 PM
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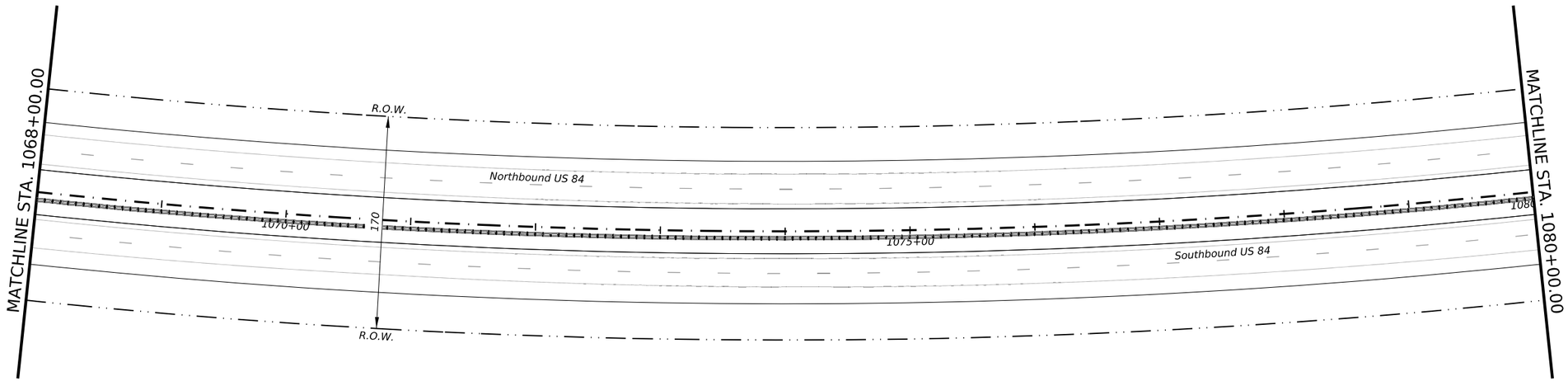

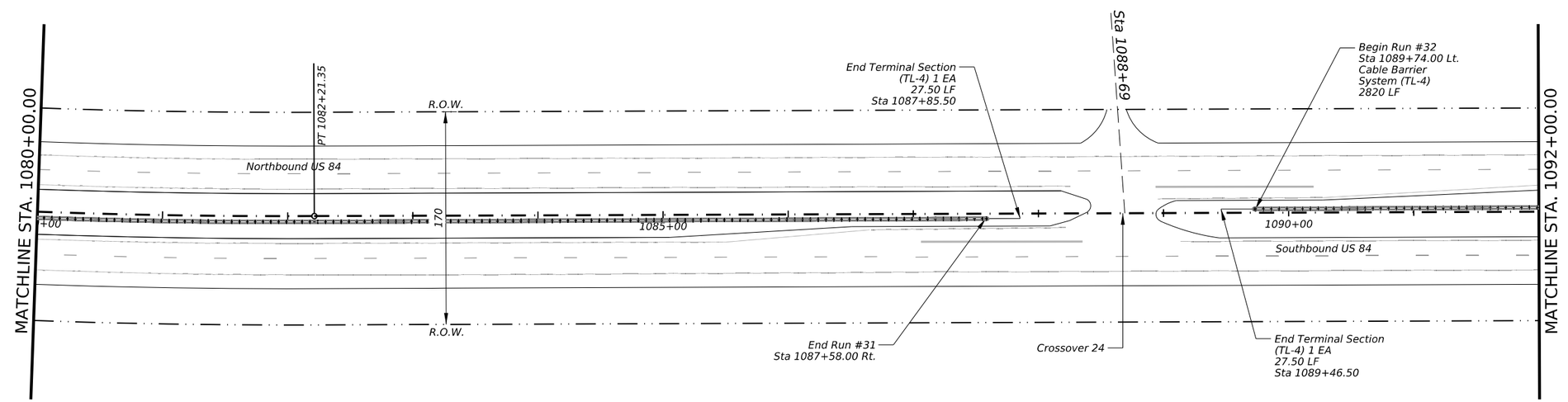

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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 43 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		124

DATE: 2/2/2024 5:09:04 PM
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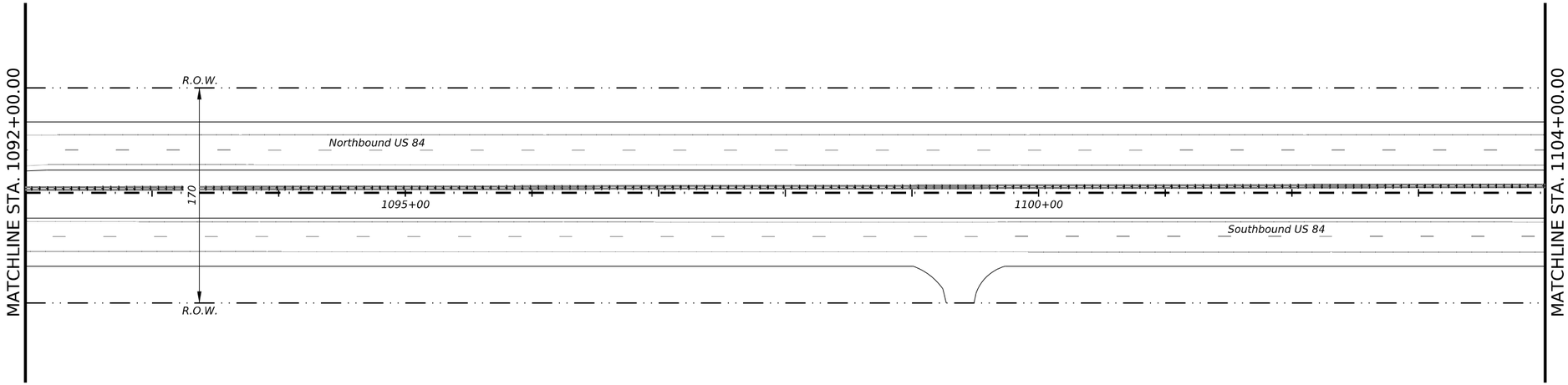

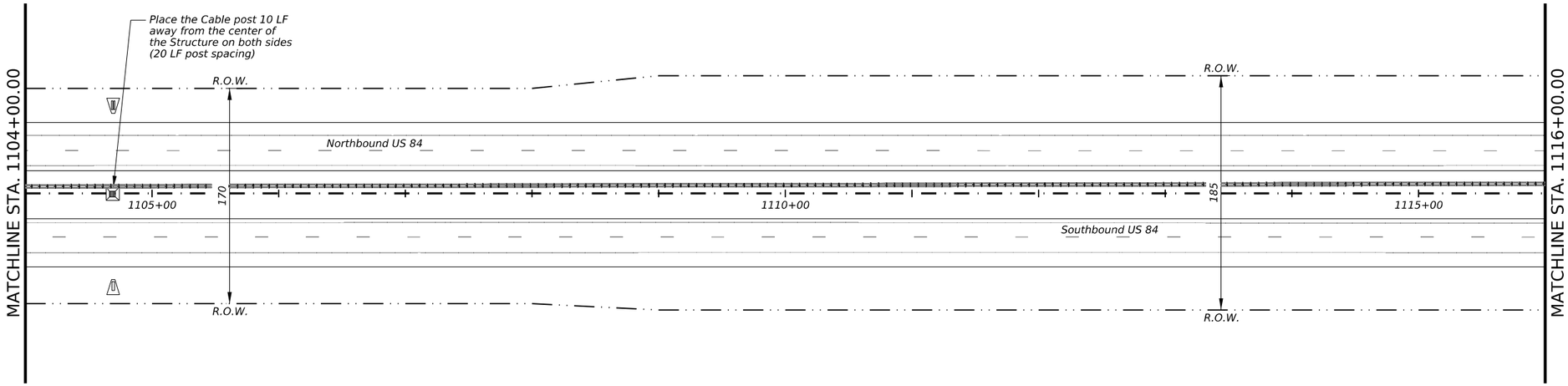

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 44 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		125

DATE: 2/2/2024 5:09:25 PM
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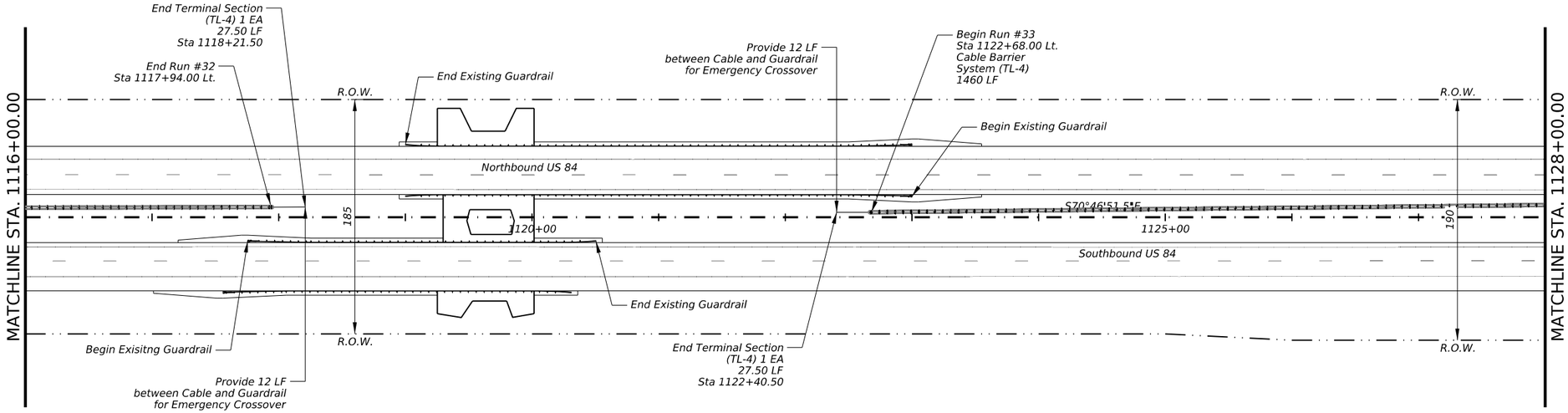

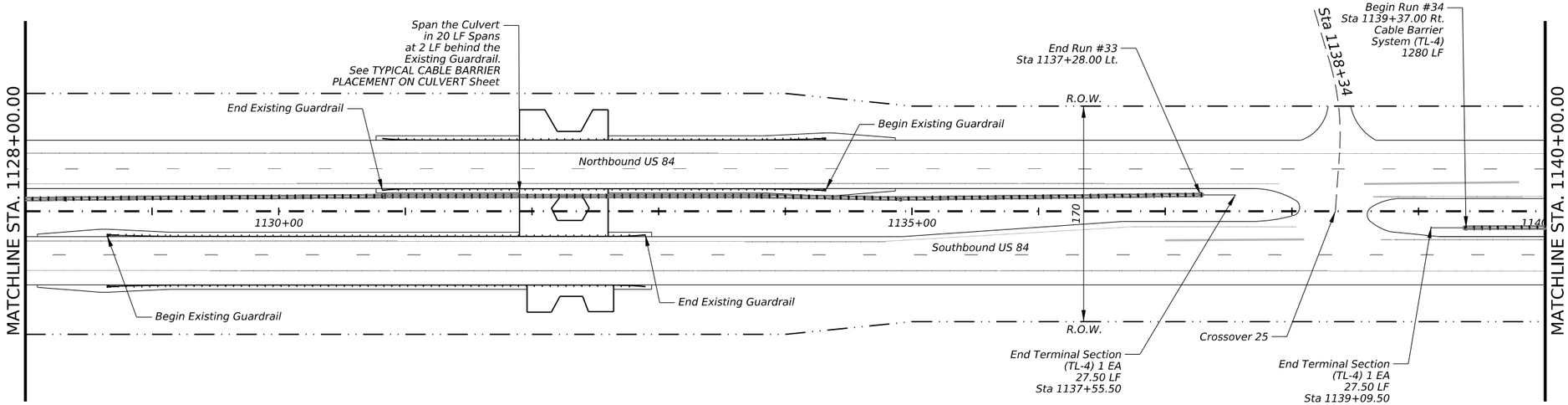

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Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 45 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		126

DATE: 2/2/2024 5:09:47 PM
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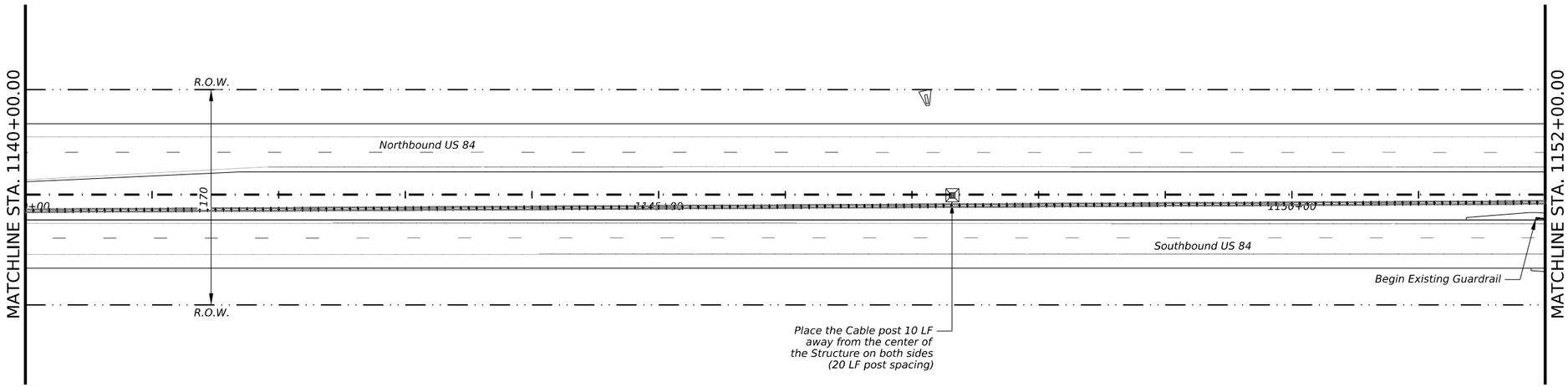

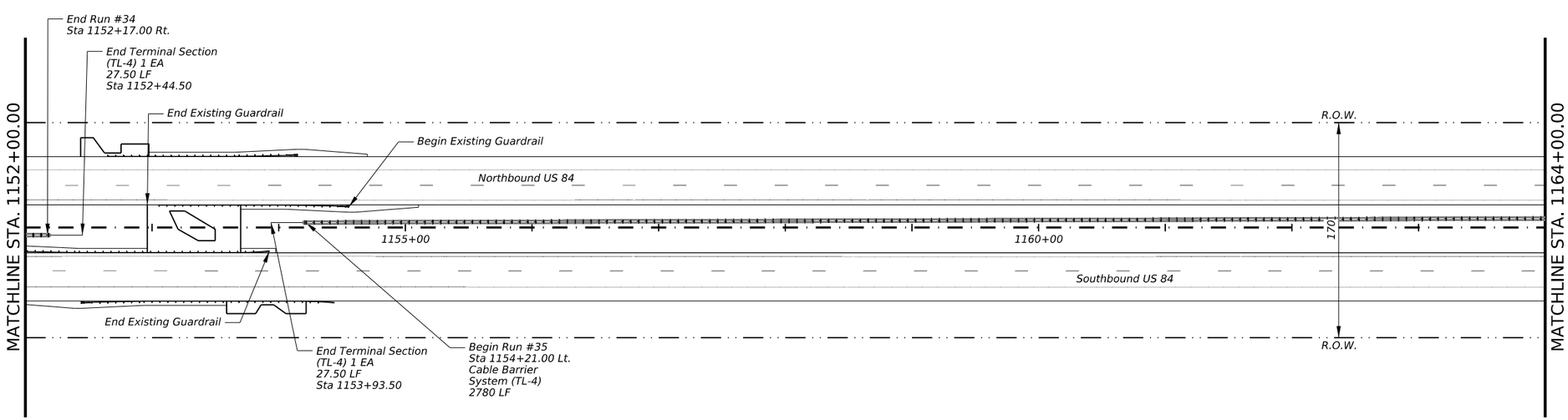

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 46 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		127

DATE: 2/2/2024 5:10:08 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US0084_RDW_PP_SOUTH.dgn

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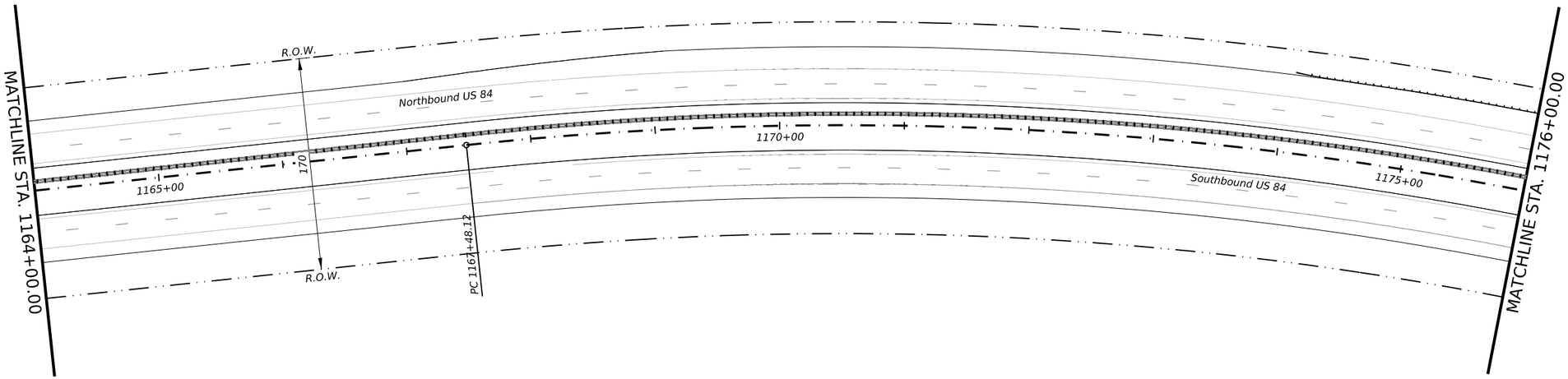

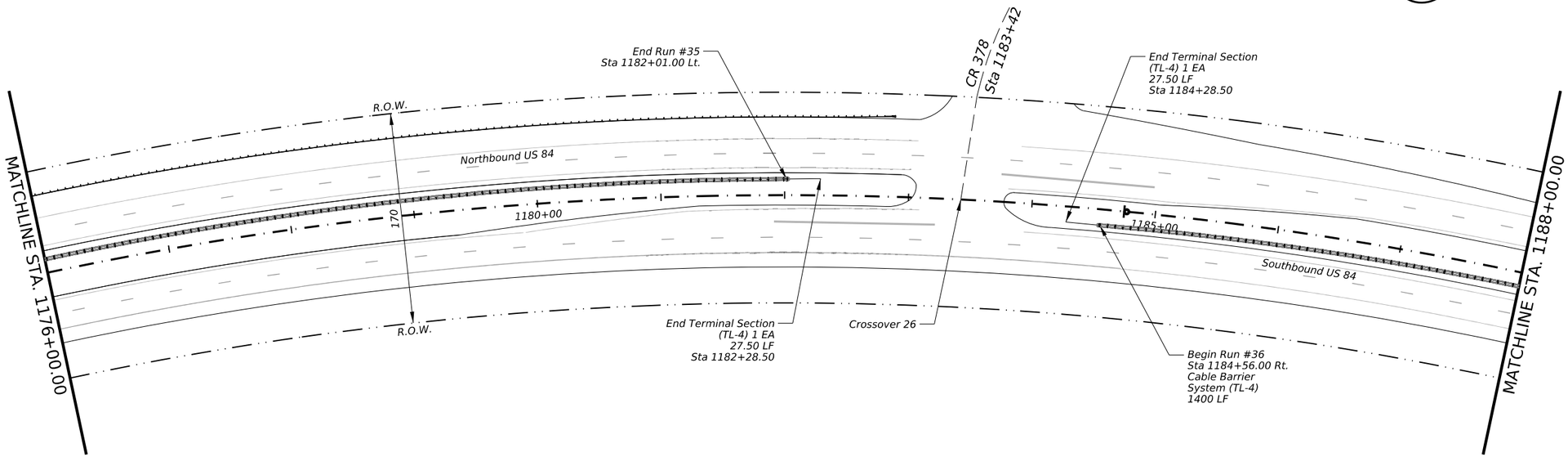

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 47 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		128

DATE: 2/2/2024 5:10:29 PM
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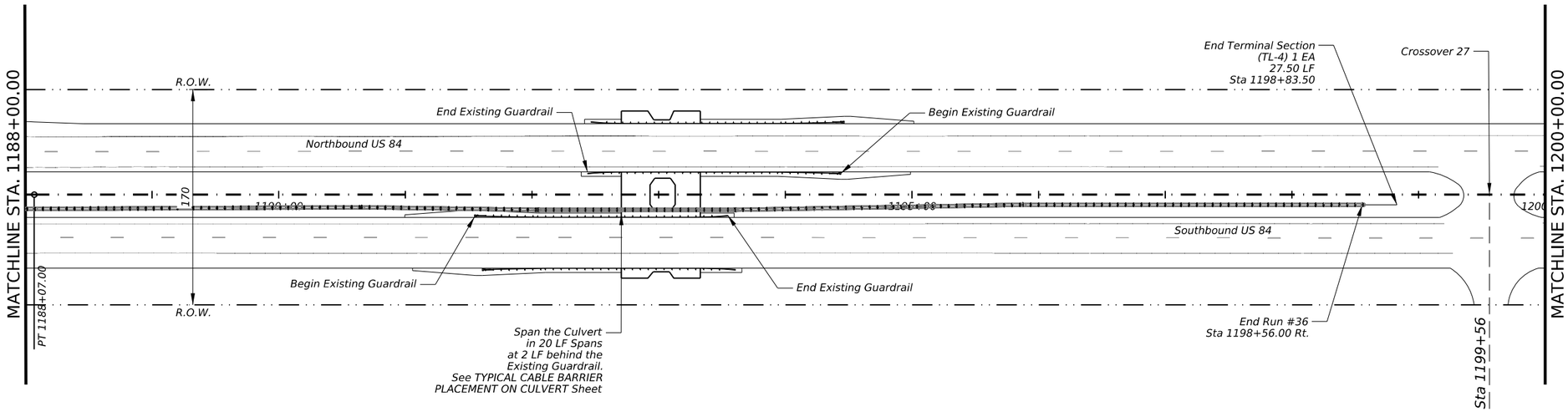

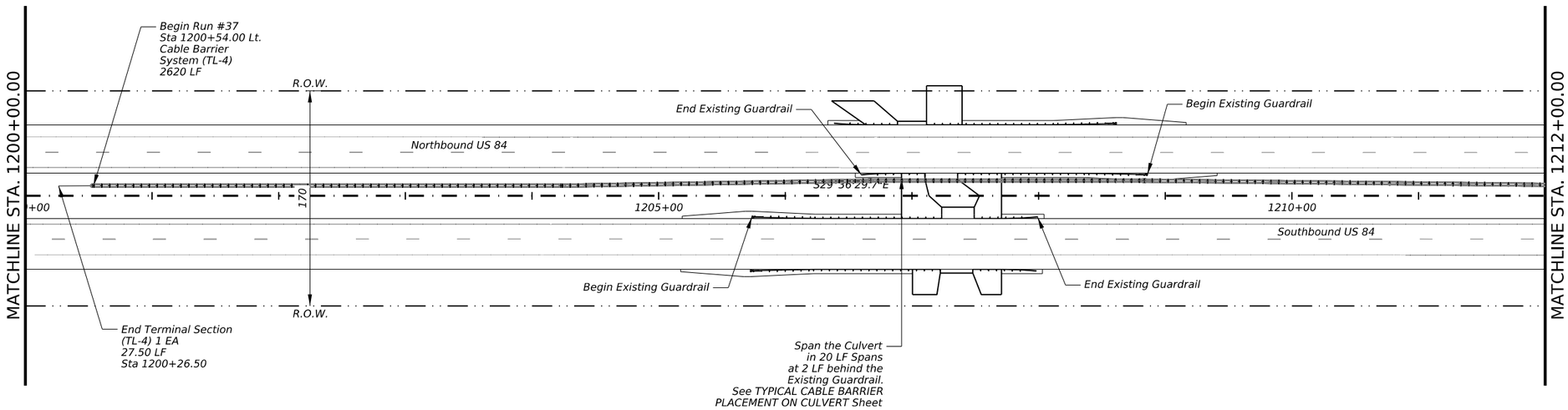

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Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		129

DATE: 2/2/2024 5:10:53 PM
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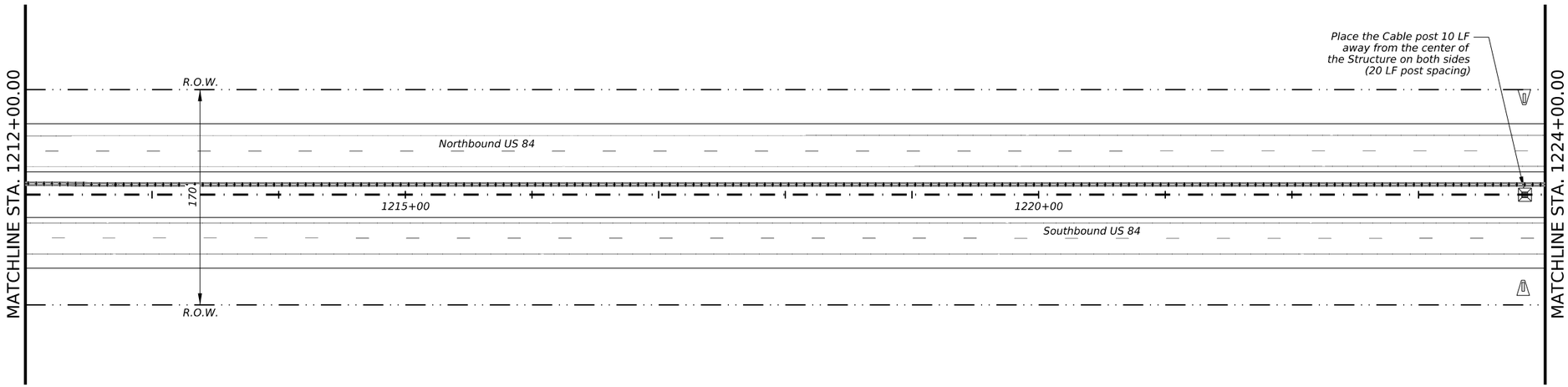

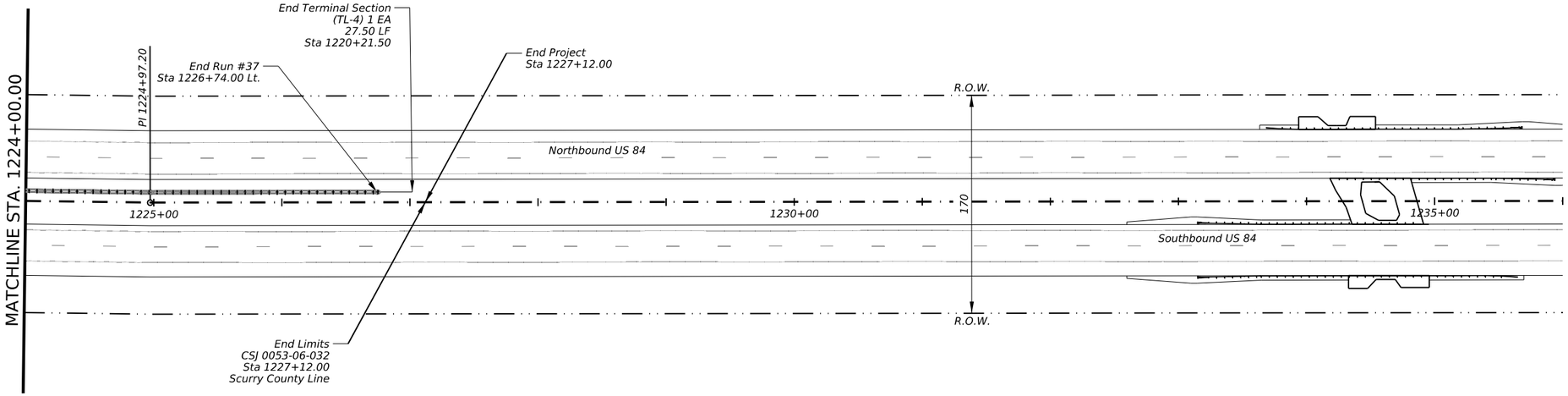

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US 84, ETC.

PLAN VIEW
(US 84 South)
SCALE: 1"=100'

SHEET 49 OF 49

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		130

DATE: 2/2/2024 5:11:13 PM
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DATE: 2/1/2024 6:12:49 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US87 RDW CABLE SUM.dgn

US 87 CABLE SUMMARY

CABLE RUN	Station		General Location		BASELINE OFFSET (LEFT OR RIGHT)	ENTIRE LENGTH	543-6002 CABLE BARRIER SYSTEM (TL-4)	543-6020 END TERM (EA)	3" WIDE MOW STRIP LENGTH	5" MOW STRIP AREA	432-6046 5" MOW STRIP (CY)	658-6095 INSTL DEL ASSM (D-DY)SZ 1(YFLX)GND	134-6002 BACKFILL	150-6001 BLADE	EMULS ASPH (EROSION CONT) (WIDTH)	EMULS ASPH (EROSION CONT) (AREA)	314-6013 EMULS ASPH (EROSION CONT) (CSS-1H) (0.22gal/sy)
	From	To	From	To		LF	LF	EA	LF	SY	CY	EA	STA	STA	LF	SY	GAL
1	1+14.00	9+49.00	CO 1	CO 2	LT	835.00	780.00	2.00	839.00	279.67	38.84	2.00	8.35	0.79	16.00	1484.44	326.58
2	11+09.00	44+44.00	CO 2	CO 3	RT	3335.00	3280.00	2.00	3339.00	1113.00	154.58	2.00	33.35	3.16	16.00	5928.89	1304.36
3	46+29.00	64+44.00	CO 3	CO 4	LT	1815.00	1760.00	2.00	1819.00	606.33	84.21	2.00	18.15	1.72	16.00	3226.67	709.87
4	66+05.00	80+60.00	CO 4	CO 5	RT	1455.00	1400.00	2.00	1459.00	486.33	67.55	2.00	14.55	1.38	16.00	2586.67	569.07
5	82+05.00	100+80.00	CO 5	CO 6	LT	1875.00	1820.00	2.00	1879.00	626.33	86.99	2.00	18.75	1.78	16.00	3333.33	733.33
6	102+59.00	132+94.00	CO 6	CO 7	RT	3035.00	2980.00	2.00	3039.00	1013.00	140.69	2.00	30.35	2.87	16.00	5395.56	1187.02
7	134+67.00	148+42.00	CO 7	CO 8	LT	1375.00	1320.00	2.00	1379.00	459.67	63.84	2.00	13.75	1.30	16.00	2444.44	537.78
8	150+09.00	196+64.00	CO 8	CO 9	RT	4655.00	4600.00	2.00	4659.00	1553.00	215.69	2.00	46.55	4.41	16.00	8275.56	1820.62
9	198+40.00	229+55.00	CO 9	CO 10	RT	3115.00	3060.00	2.00	3119.00	1039.67	144.40	2.00	31.15	2.95	16.00	5537.78	1218.31
10	230+98.00	249+53.00	CO 10	CO 11	RT	1855.00	1800.00	2.00	1859.00	619.67	86.06	2.00	18.55	1.76	16.00	3297.78	725.51
11	251+35.00	302+30.00	CO 11	CO 12	LT	5095.00	5040.00	2.00	5099.00	1699.67	236.06	2.00	50.95	4.82	16.00	9057.78	1992.71
12	304+05.00	355+20.00	CO 12	CO 13	RT	5115.00	5060.00	2.00	5119.00	1706.33	236.99	2.00	51.15	4.84	16.00	9093.33	2000.53
13	356+93.00	407+88.00	CO 13	CO 14	LT	5095.00	5040.00	2.00	5099.00	1699.67	236.06	2.00	50.95	4.82	16.00	9057.78	1992.71
14	409+62.00	460+97.00	CO 14	CO 15	RT	5135.00	5080.00	2.00	5139.00	1713.00	237.92	2.00	51.35	4.86	16.00	9128.89	2008.36
15	462+58.00	487+53.00	CO 15	CO 16	LT	2495.00	2440.00	2.00	2499.00	833.00	115.69	2.00	24.95	2.36	16.00	4435.56	975.82
16	489+03.00	513+58.00	CO 16	CO 17	RT	2455.00	2400.00	2.00	2459.00	819.67	113.84	2.00	24.55	2.32	16.00	4364.44	960.18
17	516+85.00	546+80.00	CO 17	CO 18	LT	2995.00	2940.00	2.00	2999.00	999.67	138.84	2.00	29.95	2.84	16.00	5324.44	1171.38
18	548+23.00	563+98.00	CO 18	CO 19	RT	1575.00	1520.00	2.00	1579.00	526.33	73.10	2.00	15.75	1.49	16.00	2800.00	616.00
19	565+58.00	621+13.00	CO 19	CO 20	LT	5555.00	5500.00	2.00	5559.00	1853.00	257.36	2.00	55.55	5.26	16.00	9875.56	2172.62
20	622+79.00	651+14.00	CO 20	CO 21	RT	2835.00	2780.00	2.00	2839.00	946.33	131.44	2.00	28.35	2.68	16.00	5040.00	1108.80
21	652+57.00	695+92.00	CO 21	CO 22	LT	4335.00	4280.00	2.00	4339.00	1446.33	200.88	2.00	43.35	4.10	16.00	7706.67	1695.47
22	697+48.00	707+43.00	CO 22	CO 23	RT	995.00	940.00	2.00	999.00	333.00	46.25	2.00	9.95	0.94	16.00	1768.89	389.16
23	709+07.50	737+02.50	CO 23	CO 24	LT	2795.00	2740.00	2.00	2799.00	933.00	129.58	2.00	27.95	2.65	16.00	4968.89	1093.16
0068-03-034 TOTALS						69825.00	68560.00	46.00	69917.00	23305.67	3236.90	46.00	698.25	66.12	368.00	124133.33	27309.33
24	741+16.50	789+71.50	CO 24	EMERGENCY VEHICLE CLEARANCE	RT	4855.00	4800.00	2.00	4859.00	1619.67	224.95	2.00	48.55	4.60	16.00	8631.11	1898.84
25	794+46.50	831+71.50	EMERGENCY VEHICLE CLEARANCE	END PROJECT	RT	3725.00	3670.00	2.00	3729.00	1243.00	172.64	2.00	37.25	3.53	16.00	6622.22	1456.89
0068-02-049 TOTALS						8580.00	8470.00	4.00	8588.00	2862.67	397.59	4.00	85.80	8.12	32.00	15253.33	3355.73

CO=CROSS OVER

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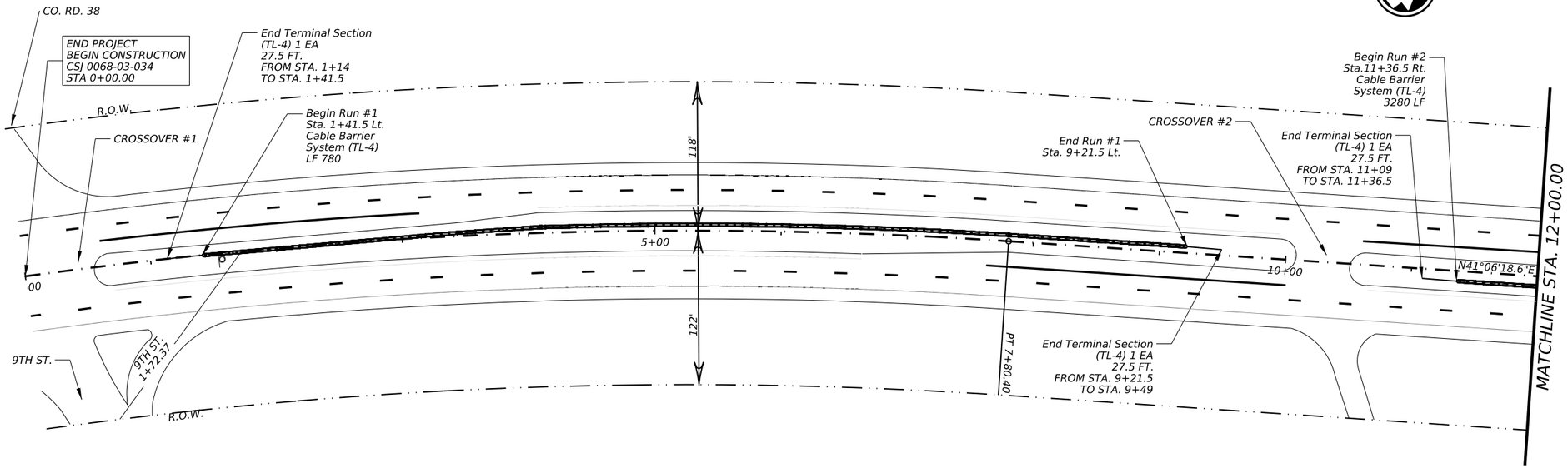
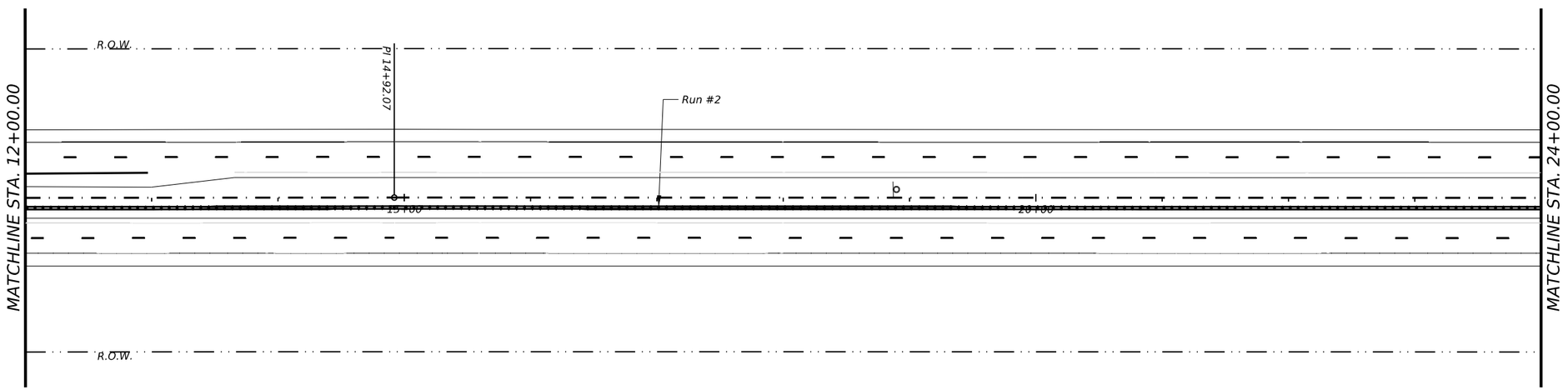
US 84, ETC.

CABLE BARRIER SUMMARY (US 87)

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		131





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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 1 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	036	US 84, etc.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK		132

DATE: 1/30/2024 4:07:01 PM
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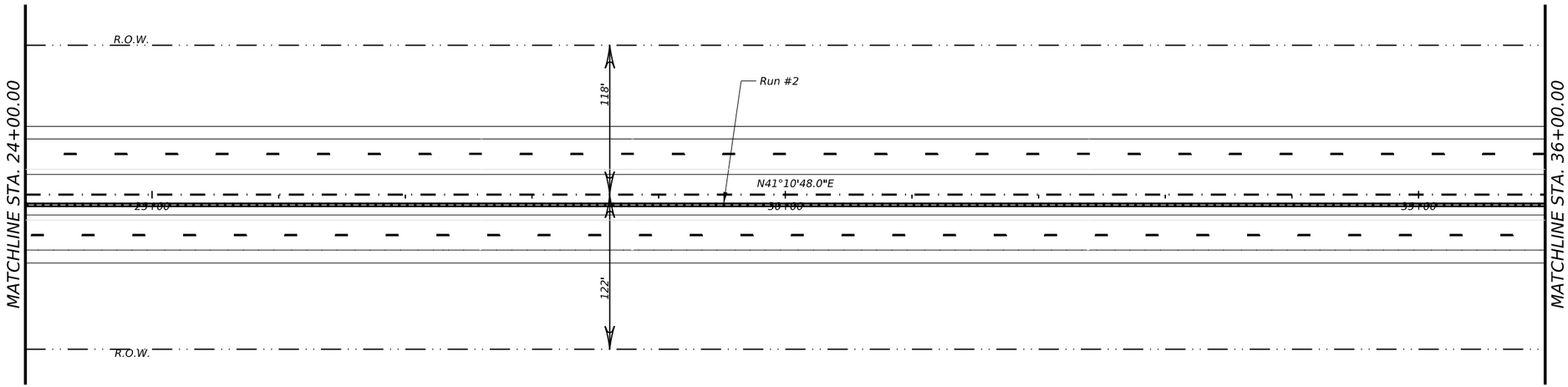

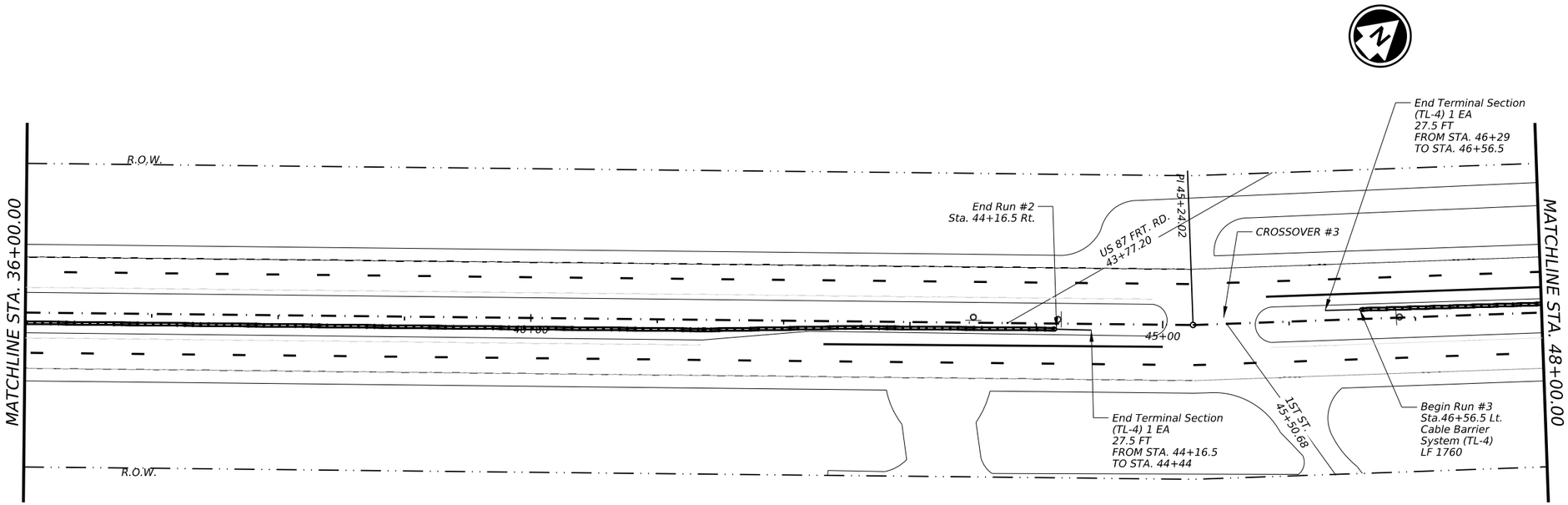

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		133

DATE: 1/30/2024 4:07:40 PM
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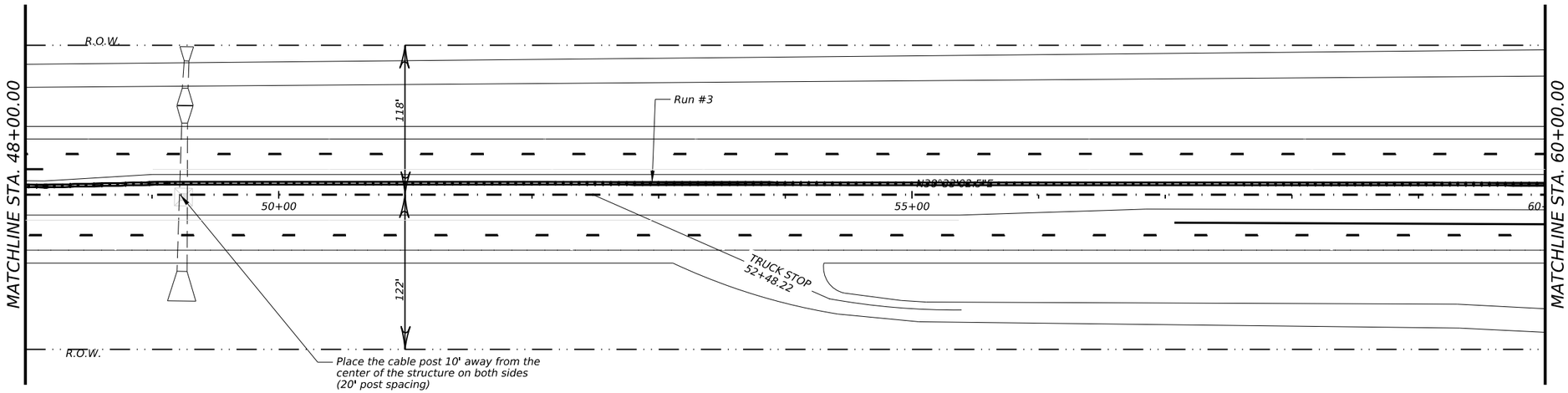

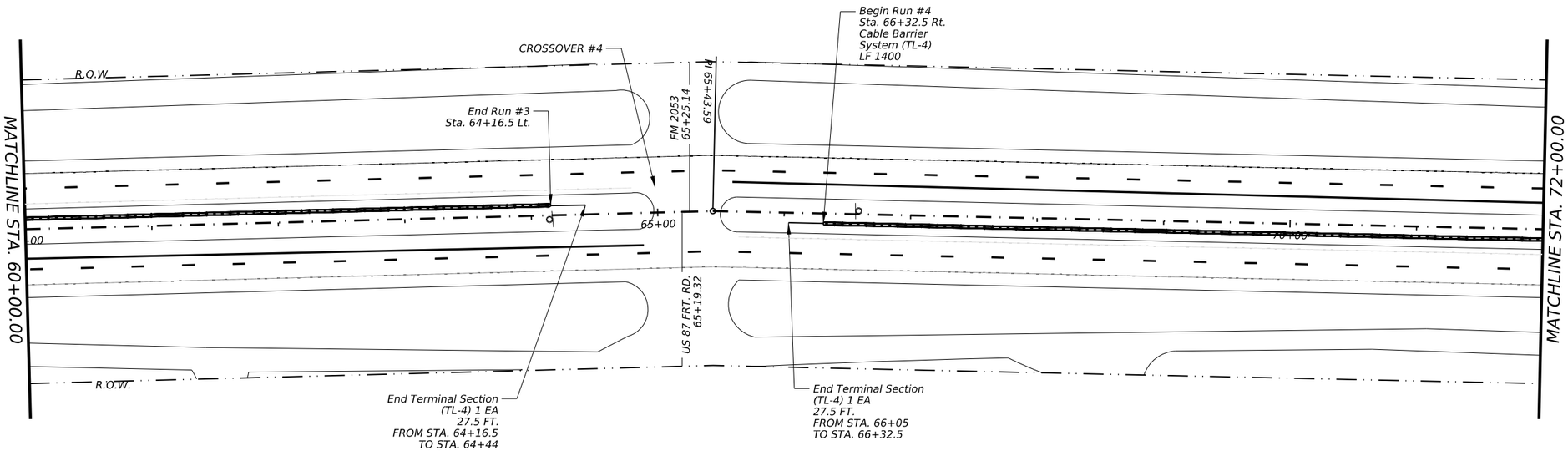

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 3 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		134

DATE: 1/30/2024 4:07:53 PM
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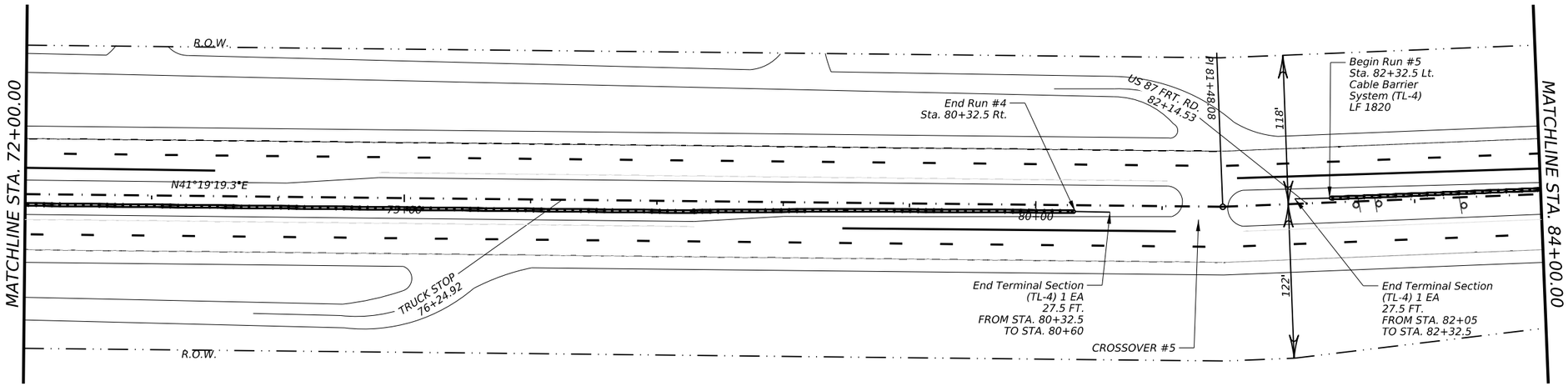

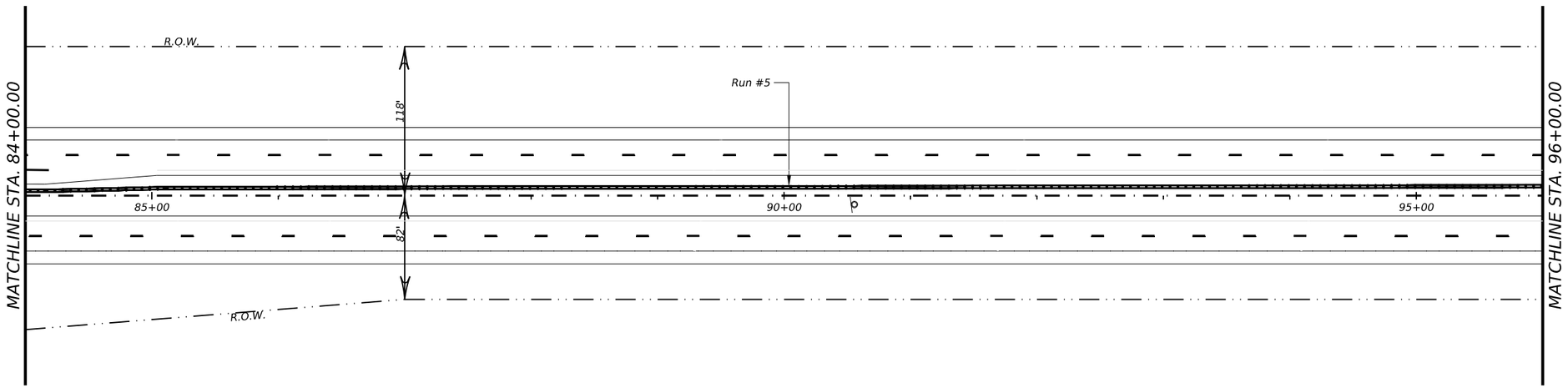

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		135

DATE: 1/30/2024 4:08:12 PM
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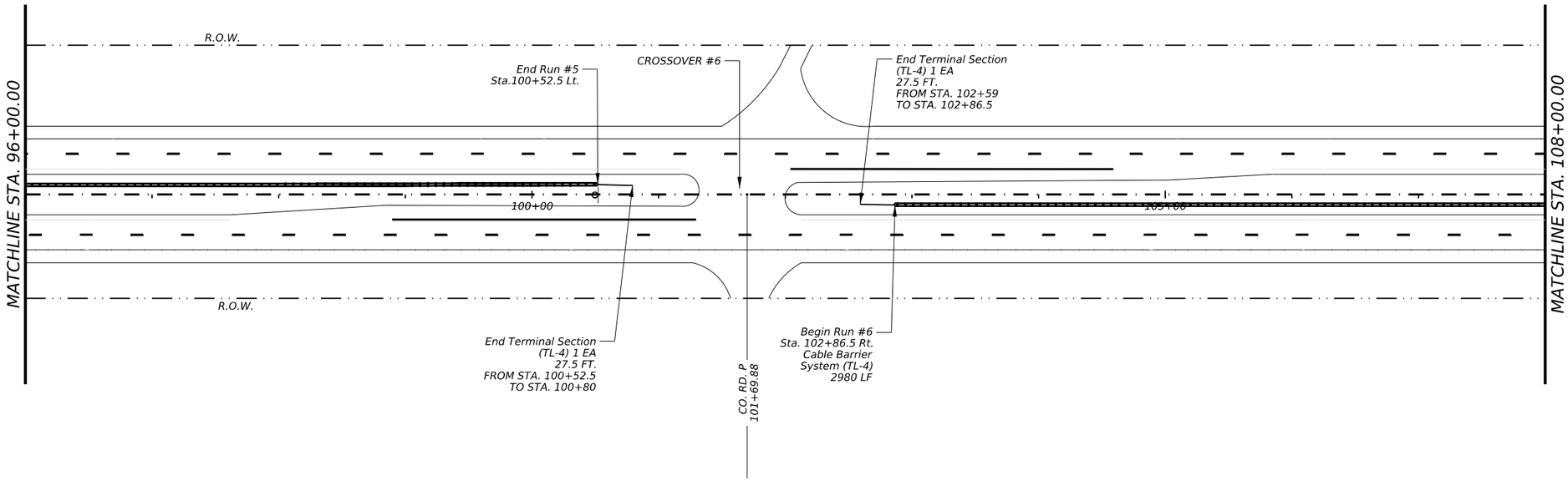

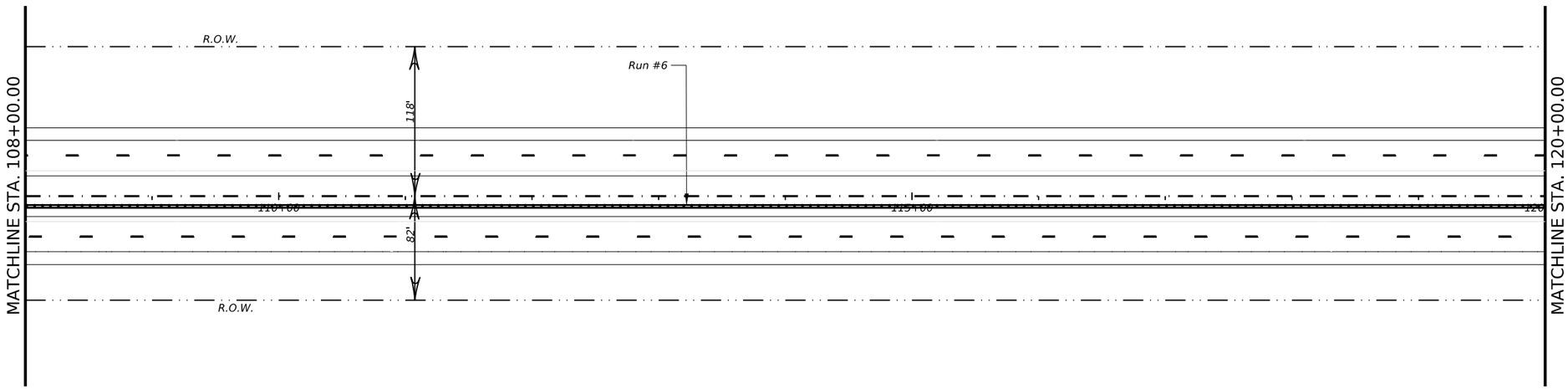

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 5 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		136

DATE: 1/30/2024 4:08:33 PM
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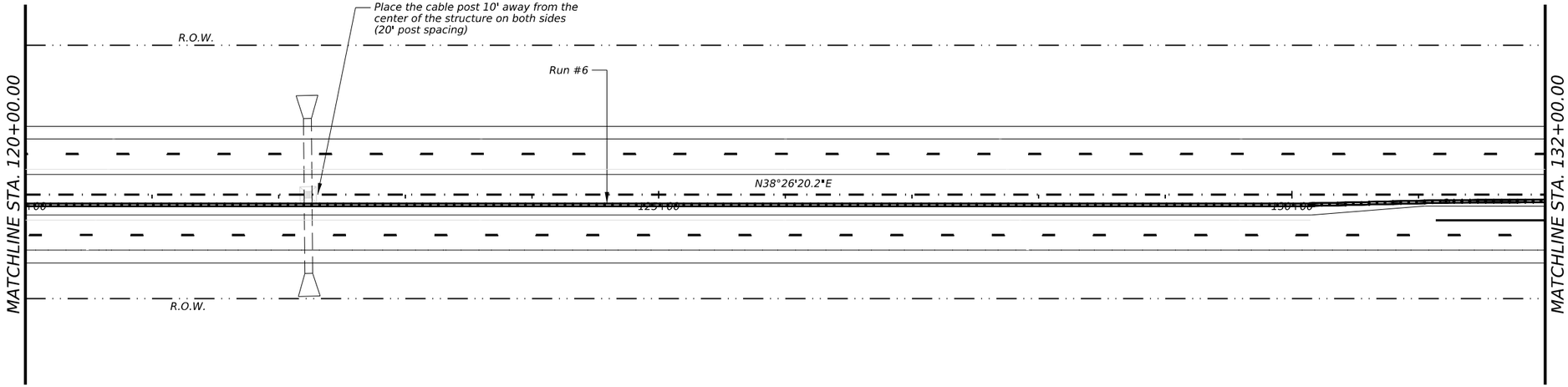

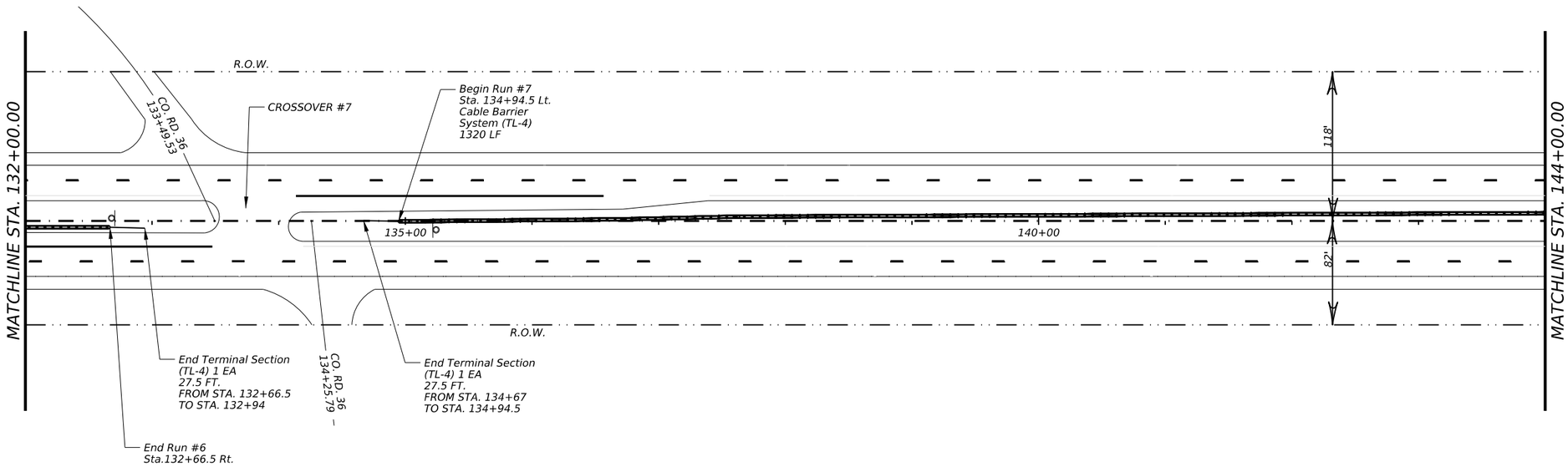

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PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 6 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		137

DATE: 1/30/2024 4:08:49 PM
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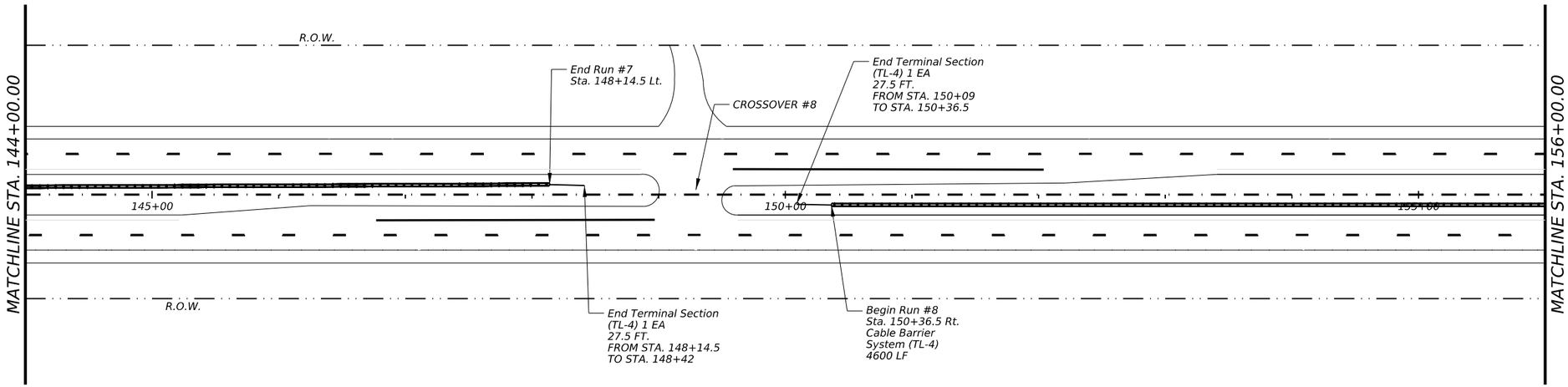

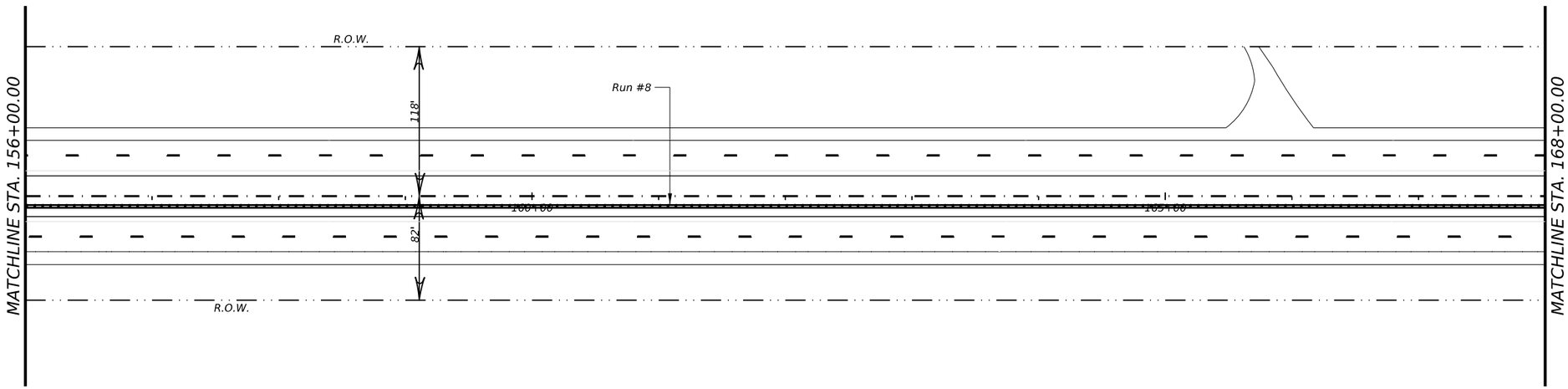

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 7 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		138

DATE: 1/30/2024 4:09:05 PM
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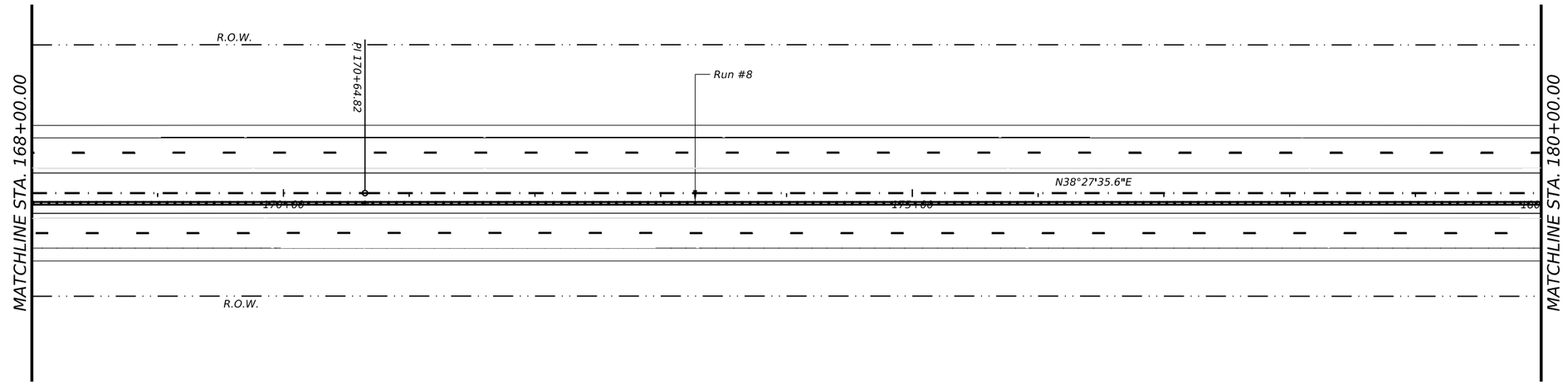

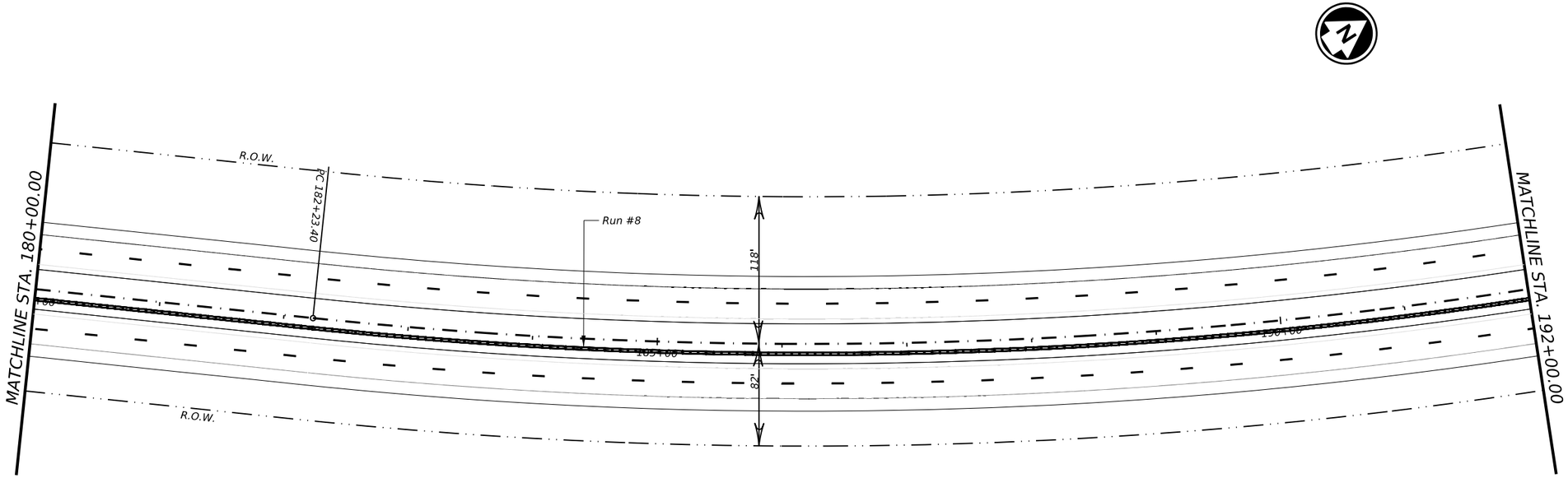

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UAS 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 8 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		139

DATE: 1/30/2024 4:09:20 PM
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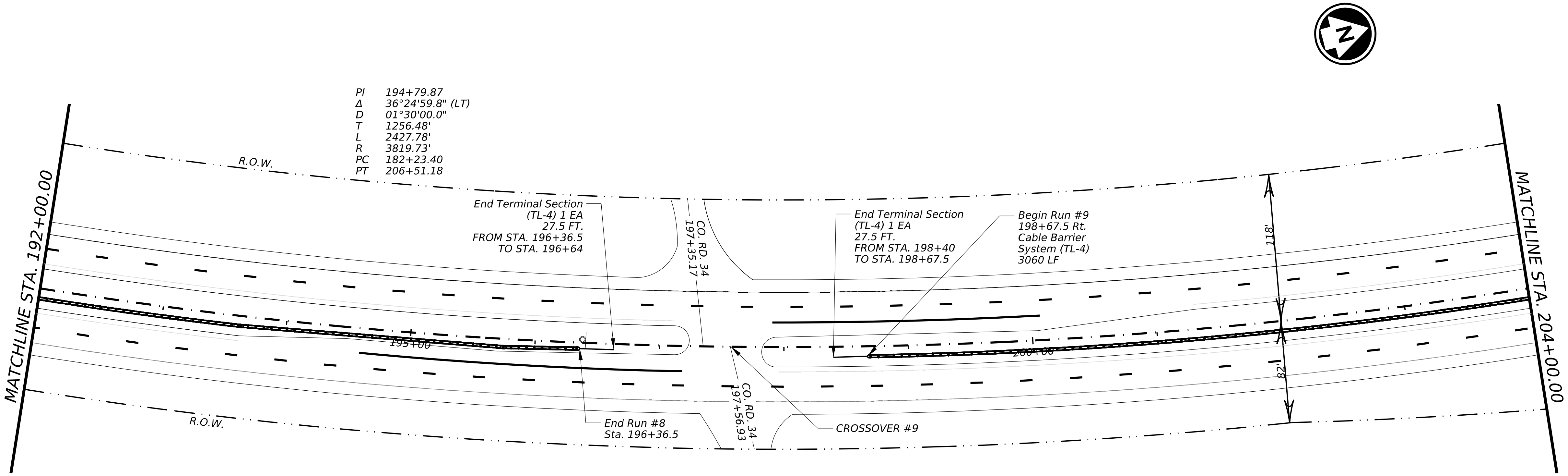

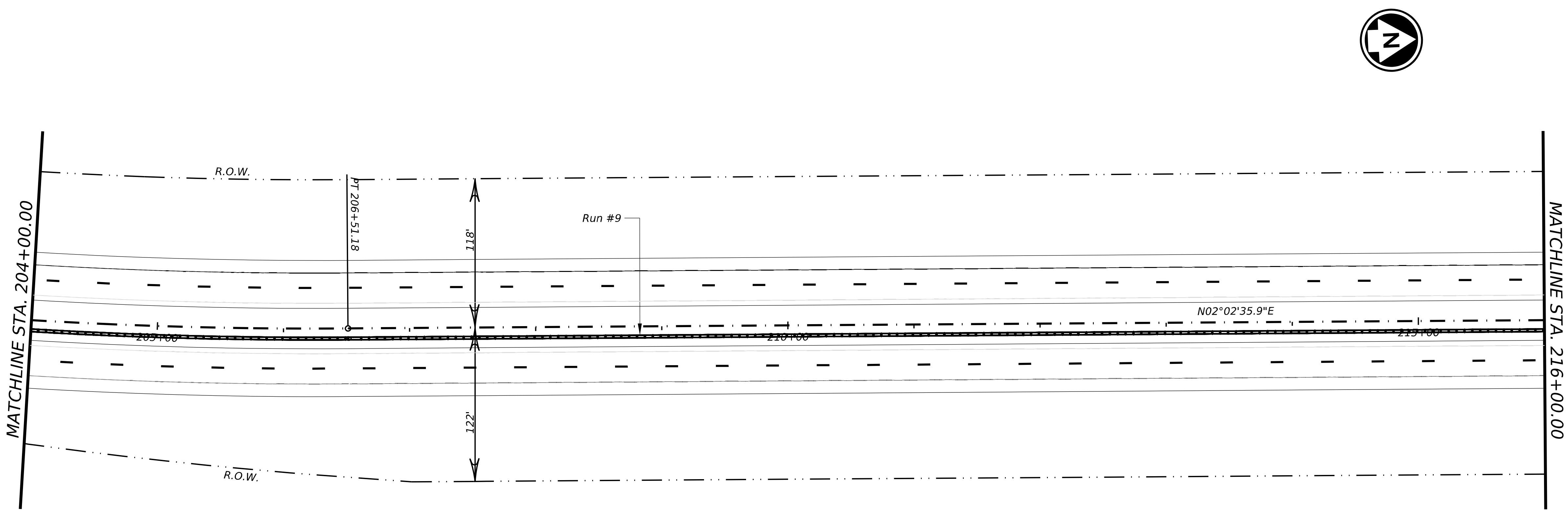

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PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 9 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		140

DATE: 1/30/2024 4:09:34 PM
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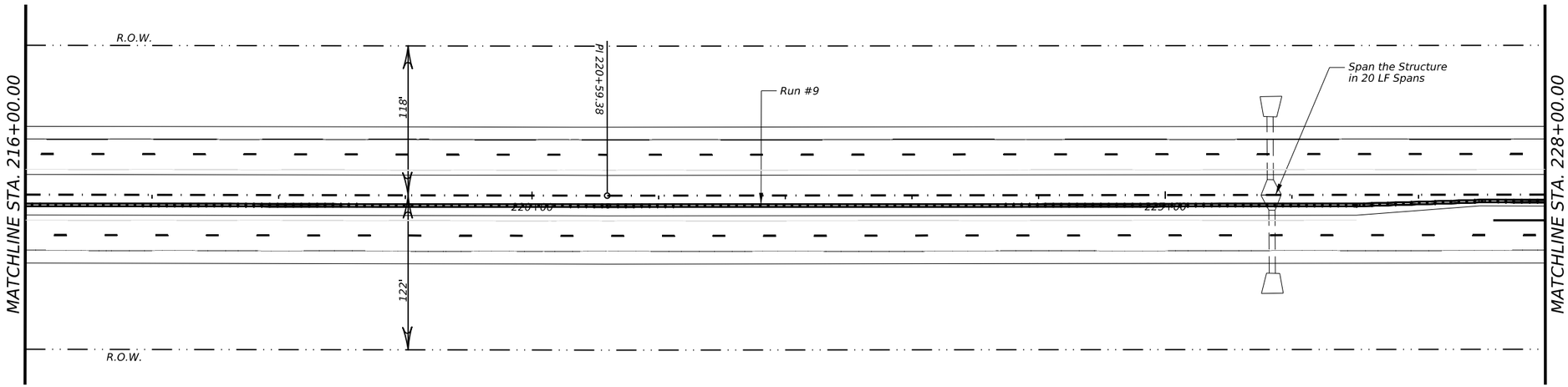

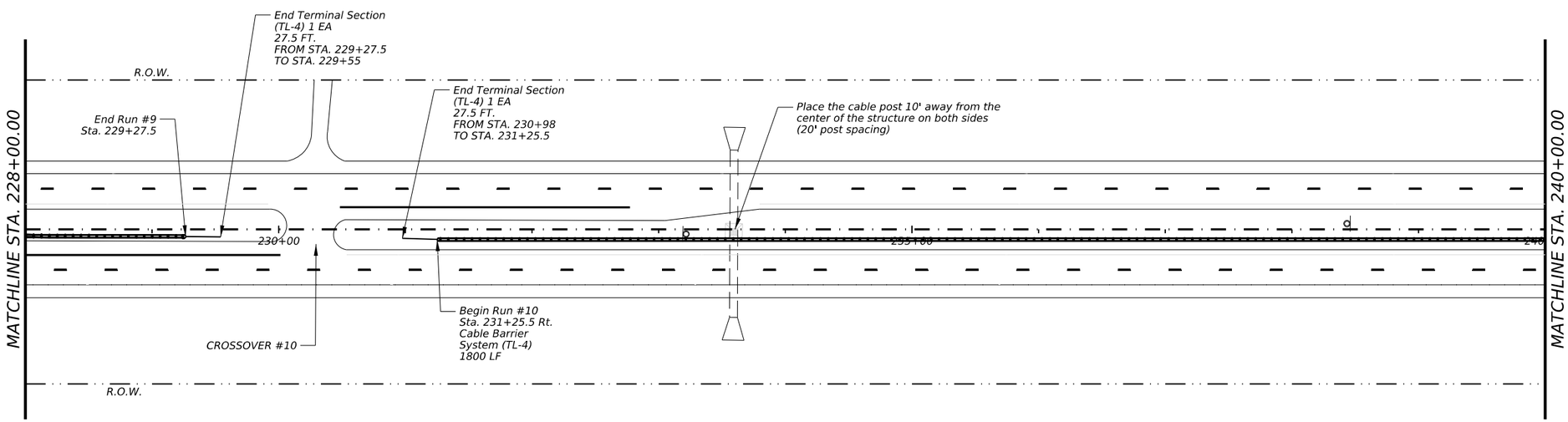

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 10 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		141

DATE: 1/30/2024 4:09:57 PM
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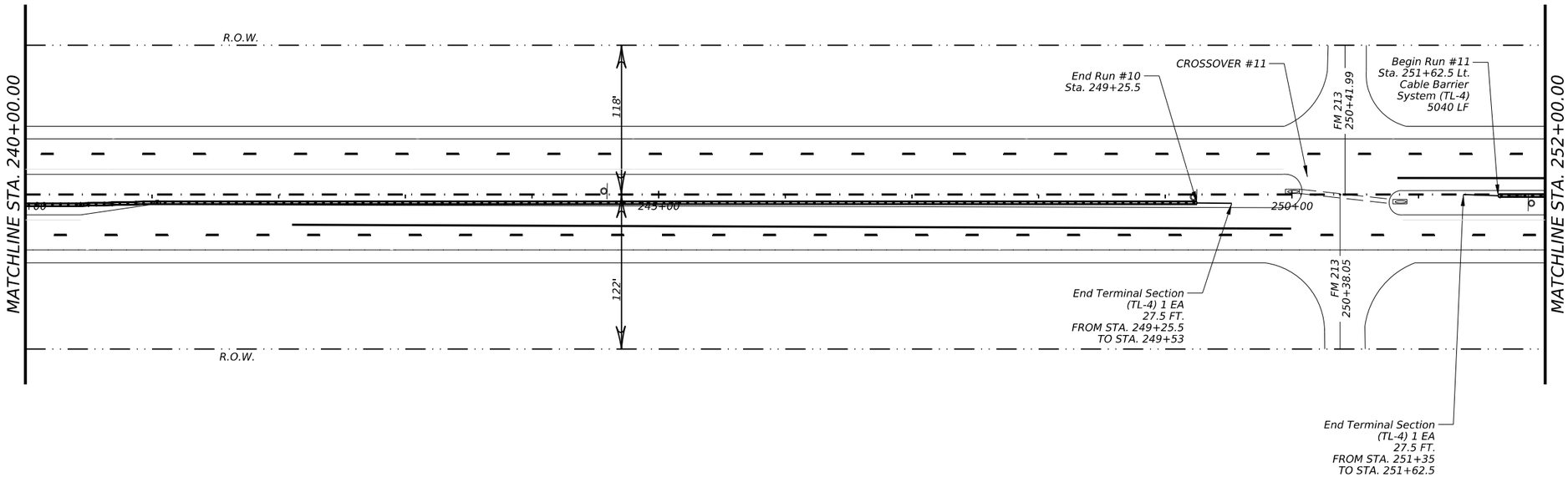

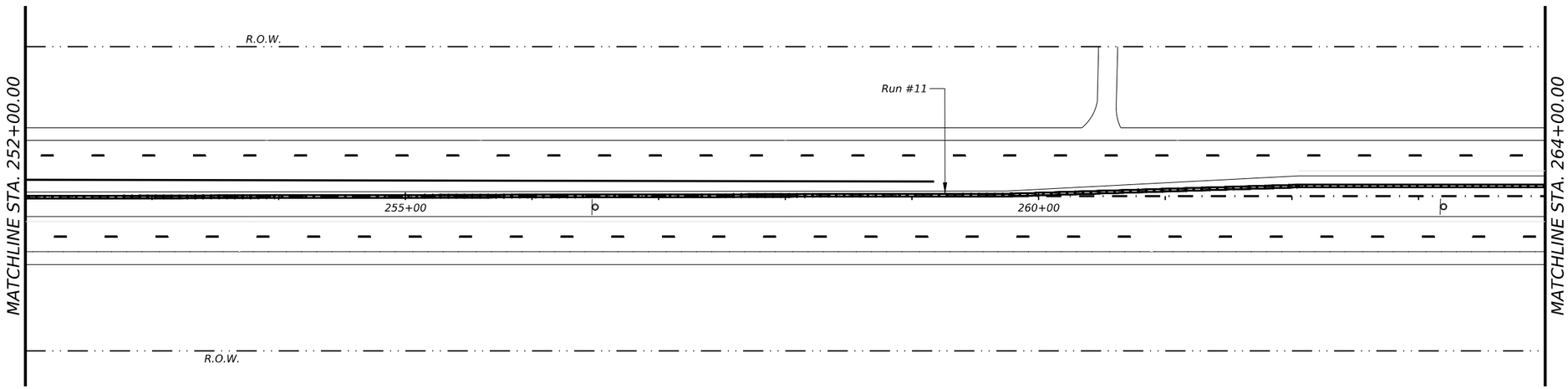

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PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 11 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		142

DATE: 1/30/2024 4:10:10 PM
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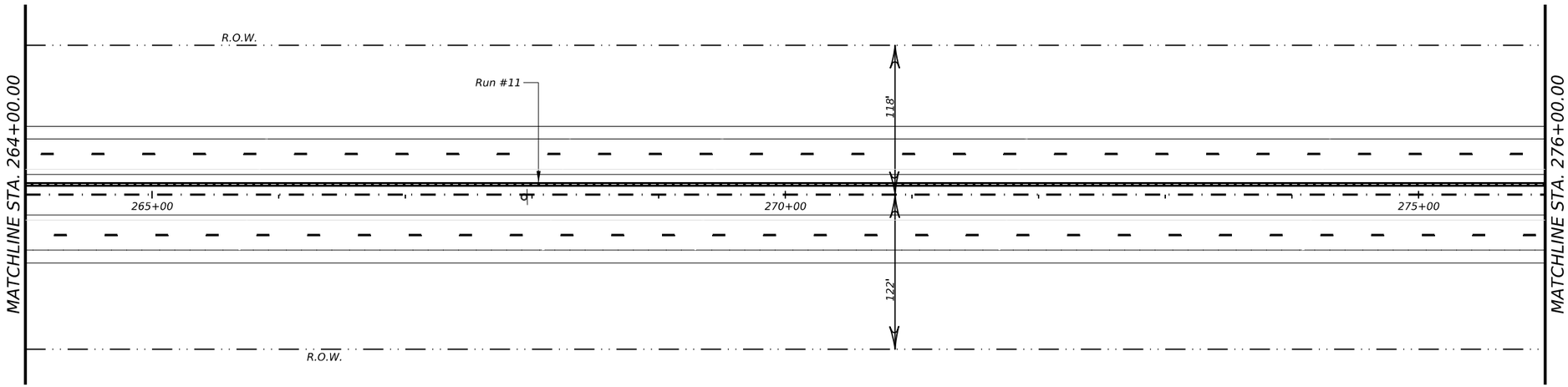

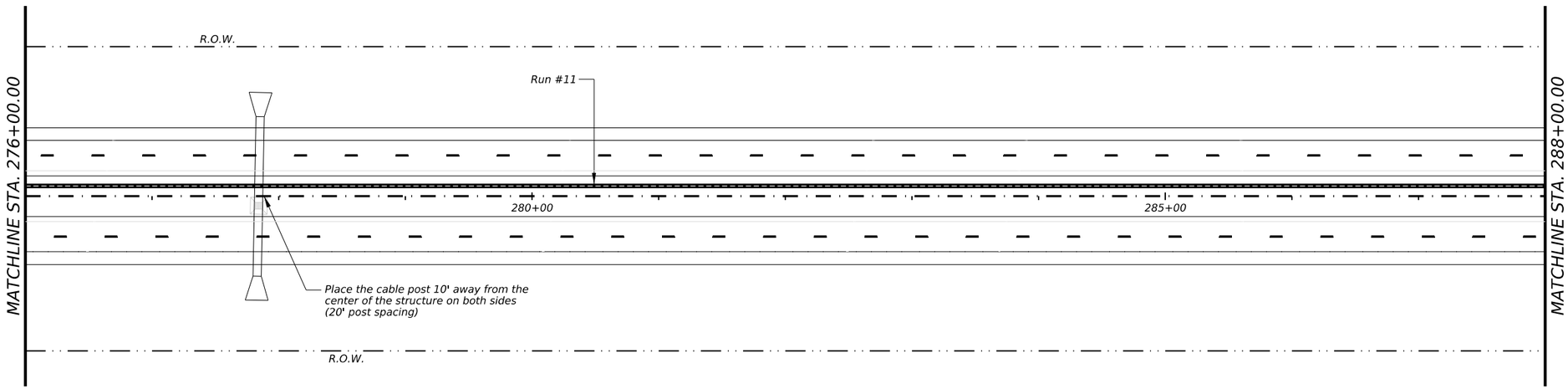

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PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 12 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		143

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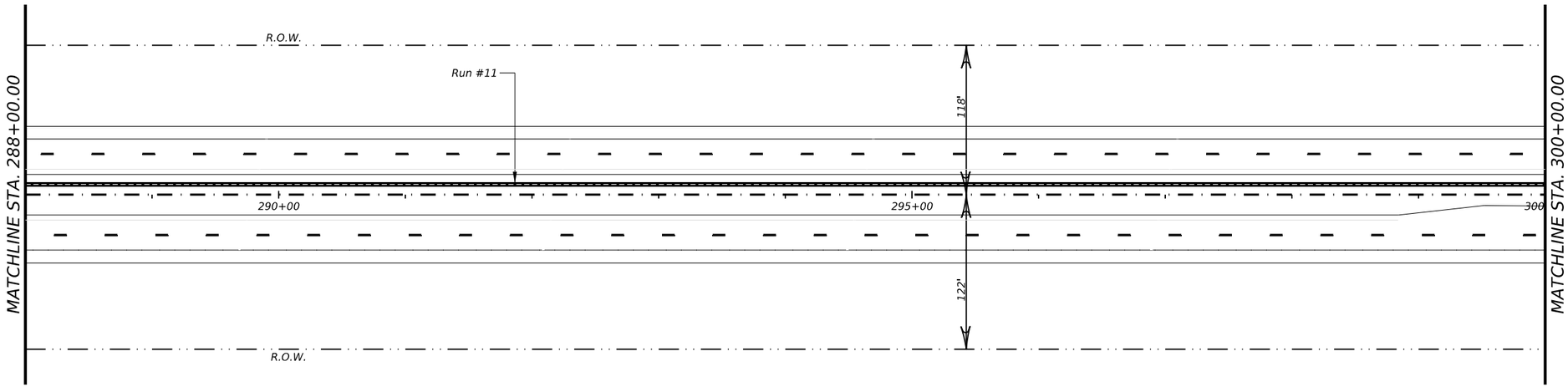

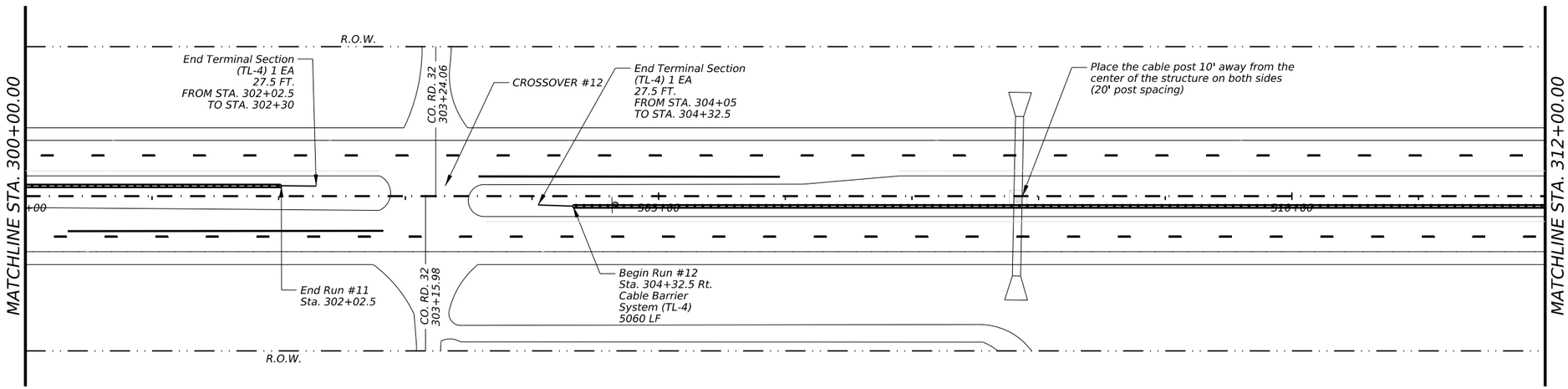

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 13 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		144

DATE: 1/30/2024 4:10:45 PM
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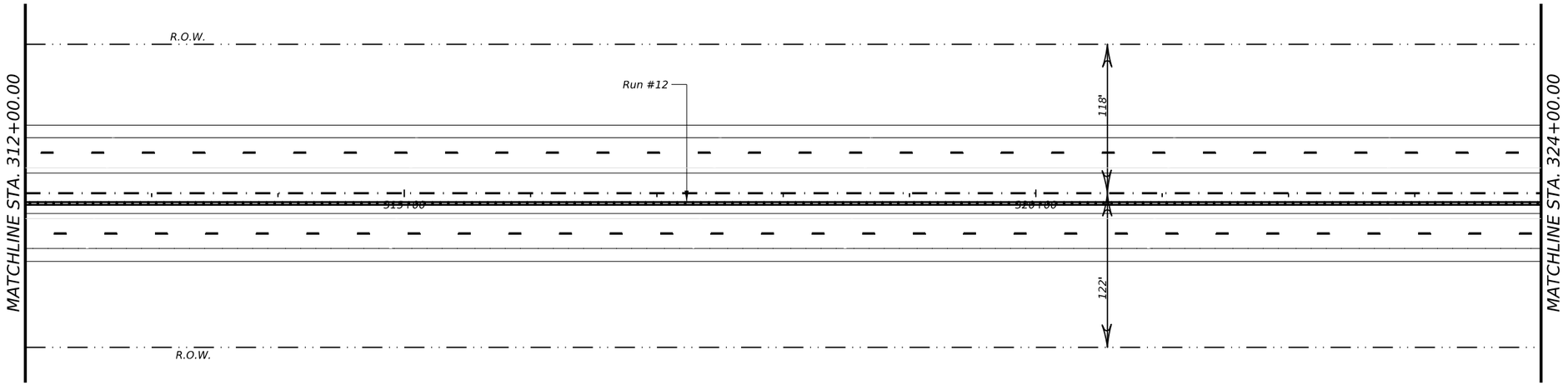

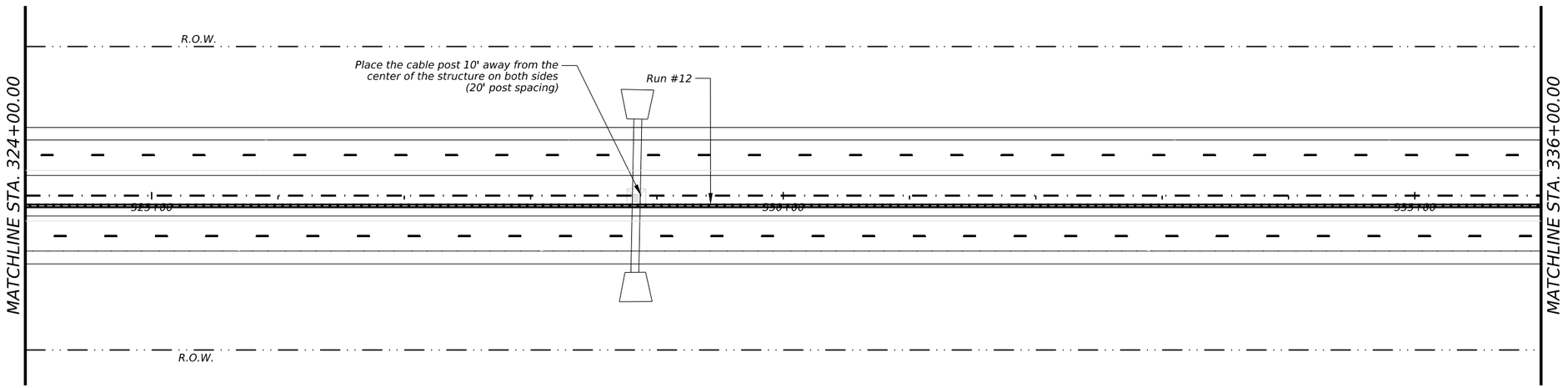

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PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 14 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		145

DATE: 1/30/2024 4:11:05 PM
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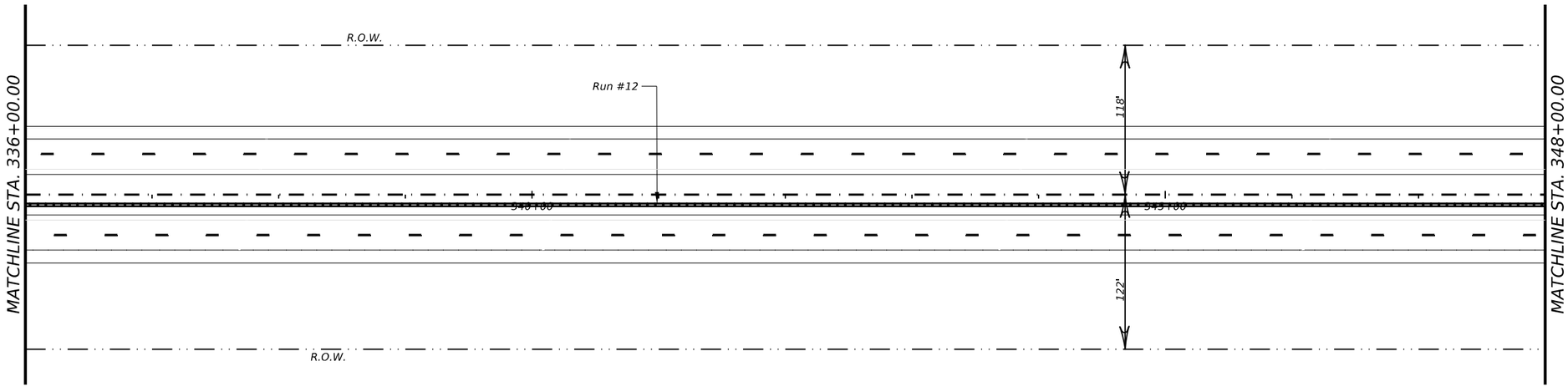

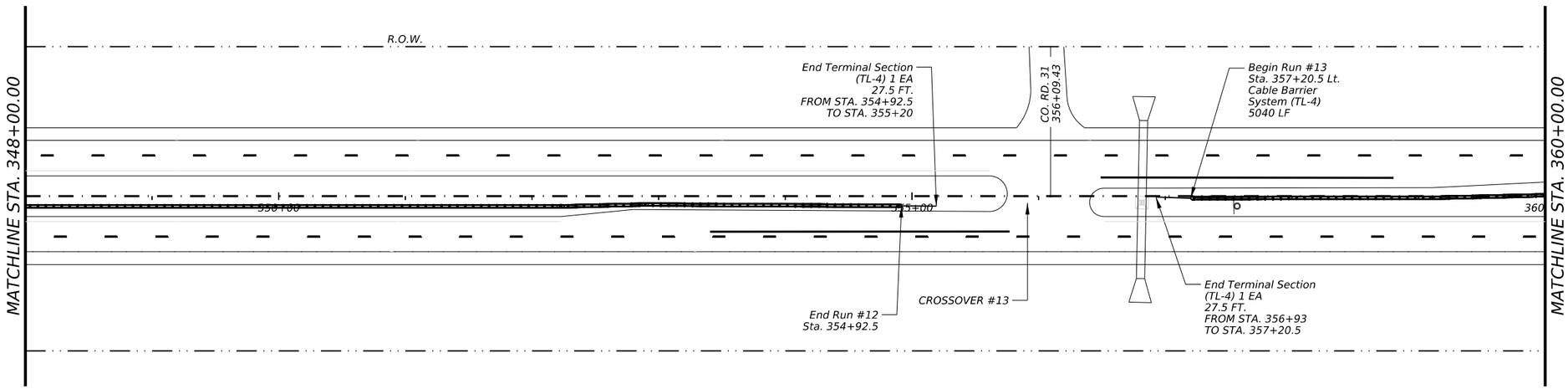

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 15 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		146

DATE: 1/30/2024 4:11:25 PM
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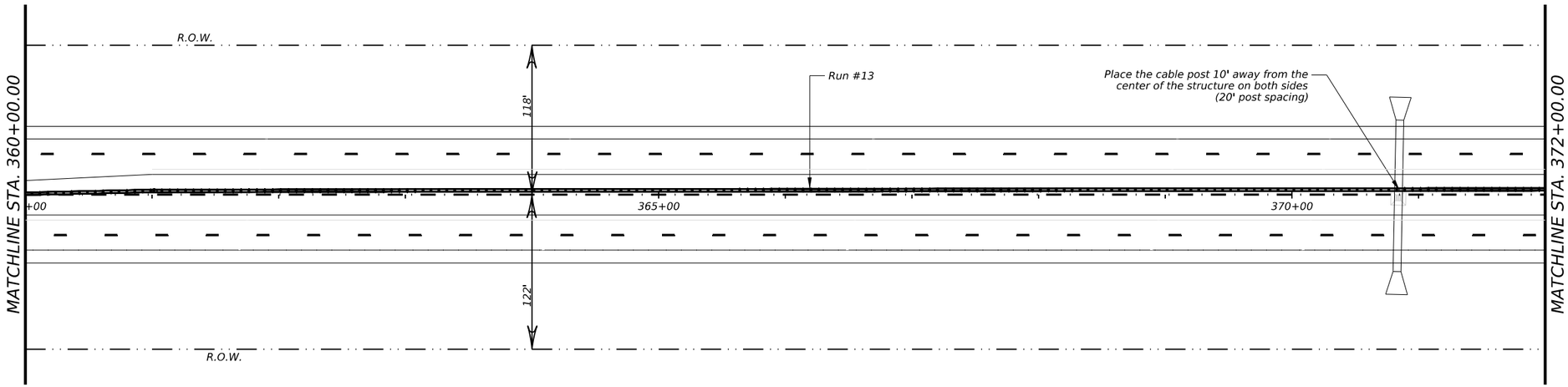

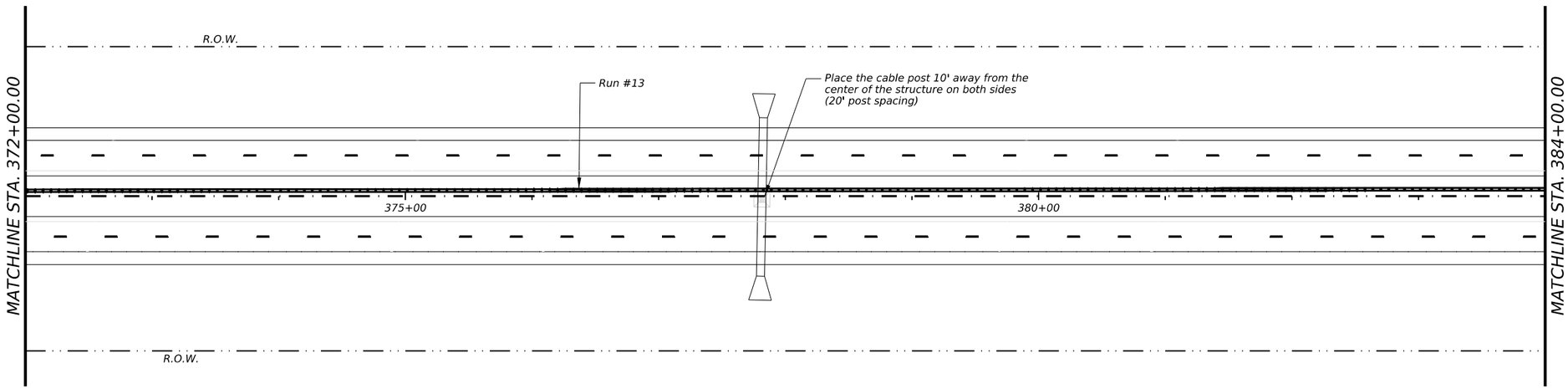

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PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 16 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		147

DATE: 1/30/2024 4:11:41 PM
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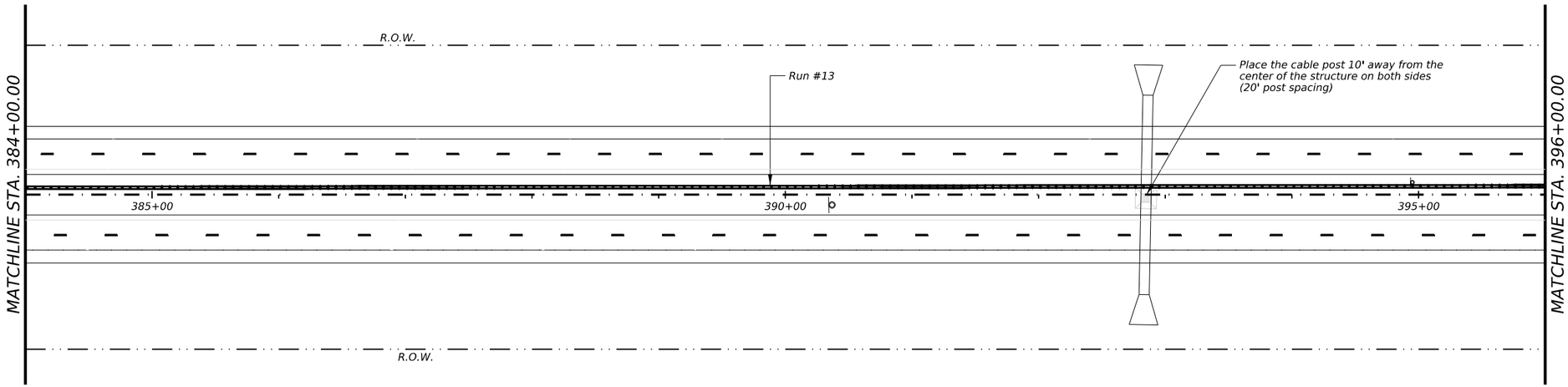

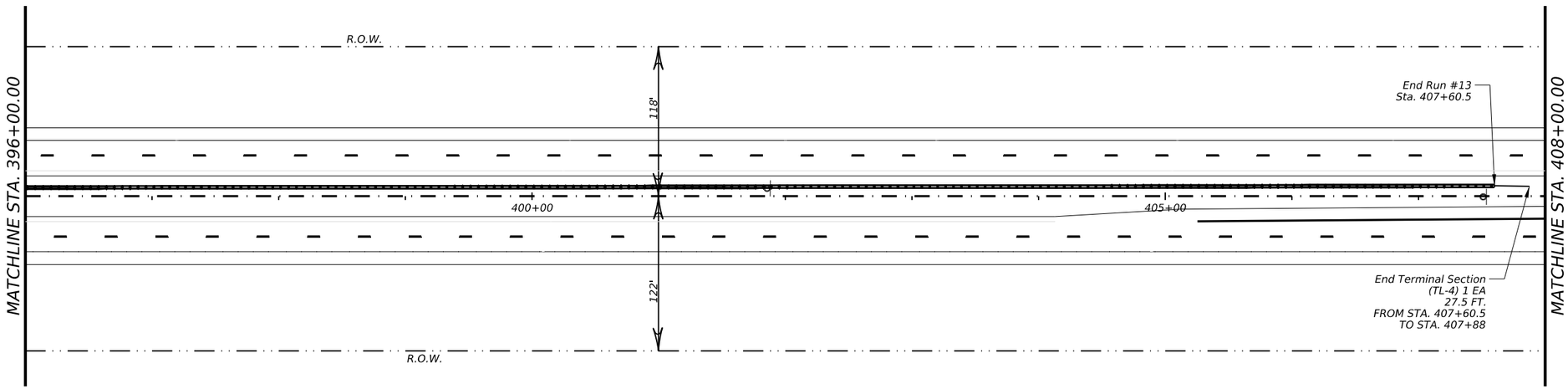

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Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 17 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		148

DATE: 1/30/2024 4:11:54 PM
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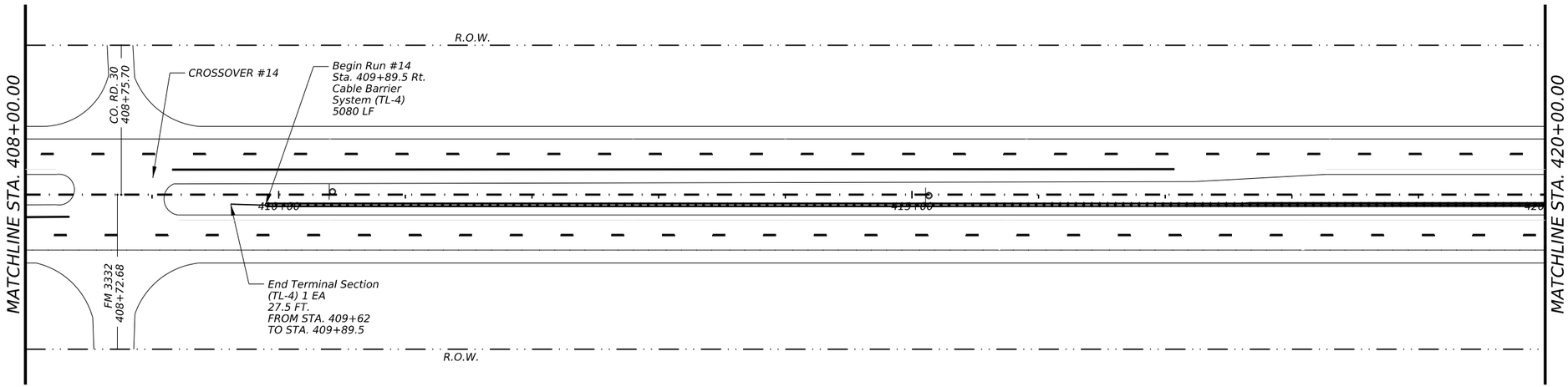

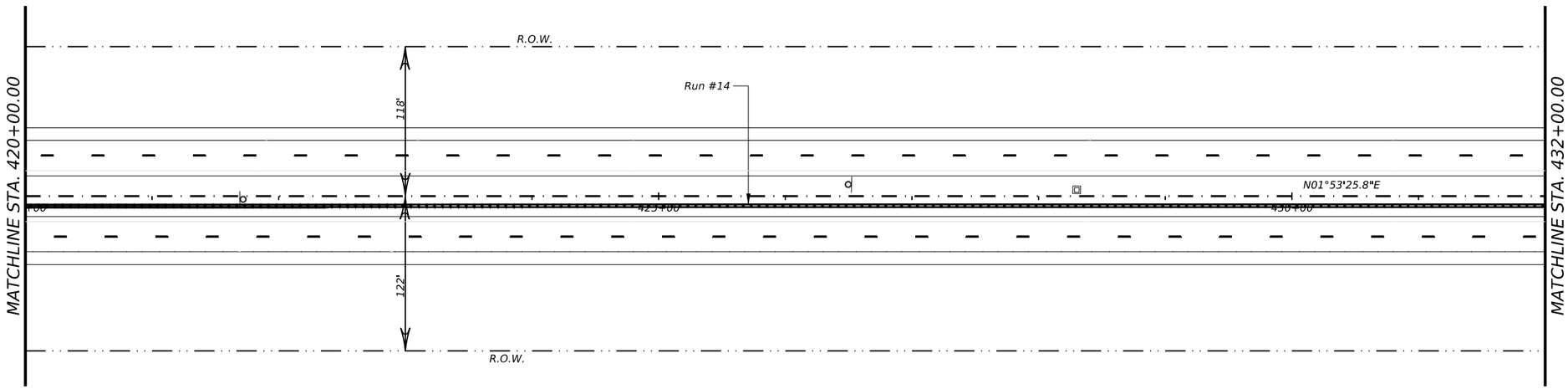

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 18 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		149

DATE: 1/30/2024 4:12:06 PM
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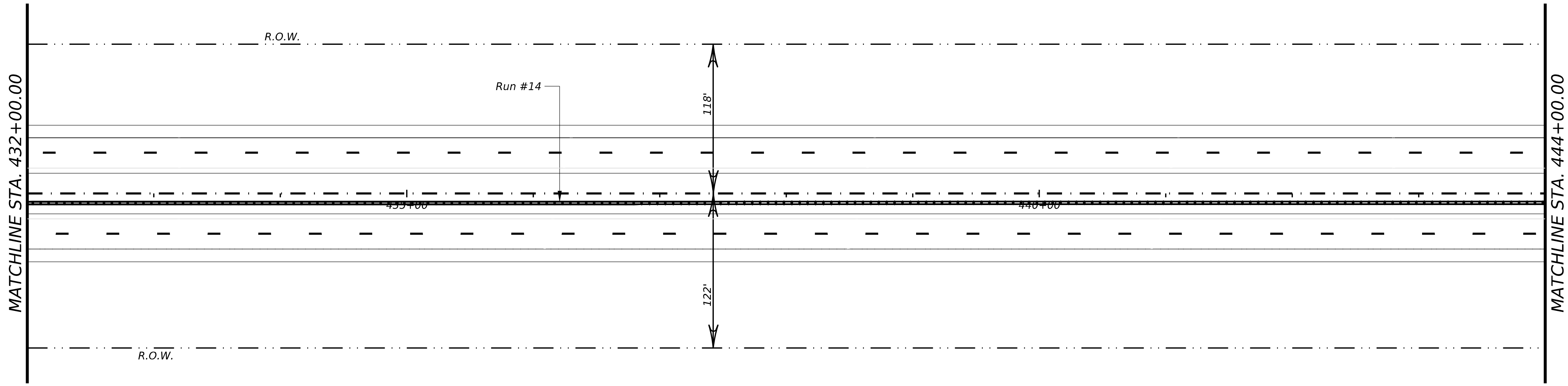

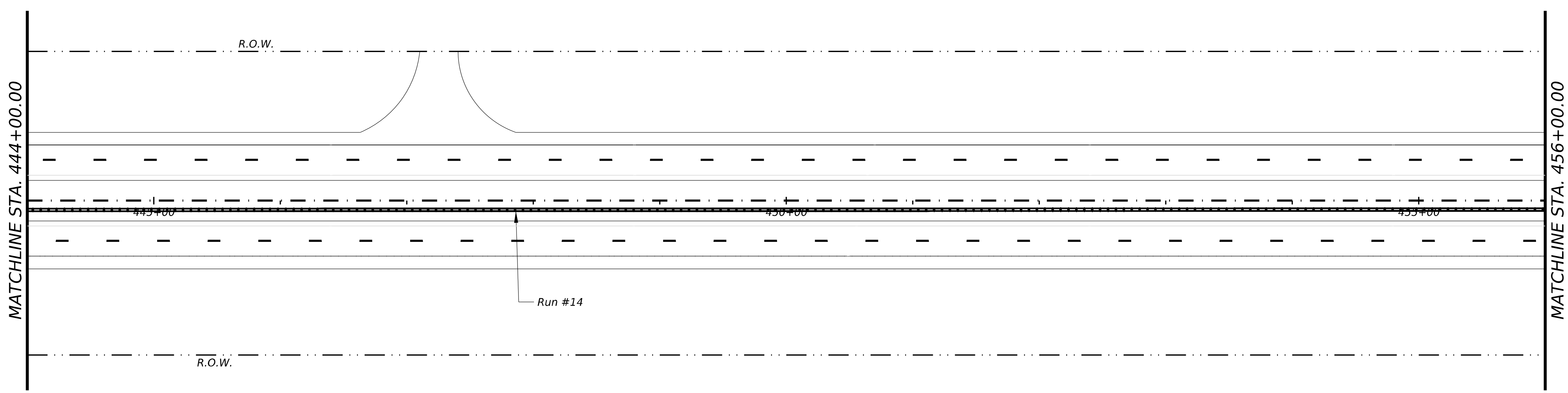

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1''=100'

SHEET 19 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.

DIST	COUNTY	SHEET NO.
LBB	LUBBOCK, ETC.	150

DATE: 1/30/2024 4:12:24 PM
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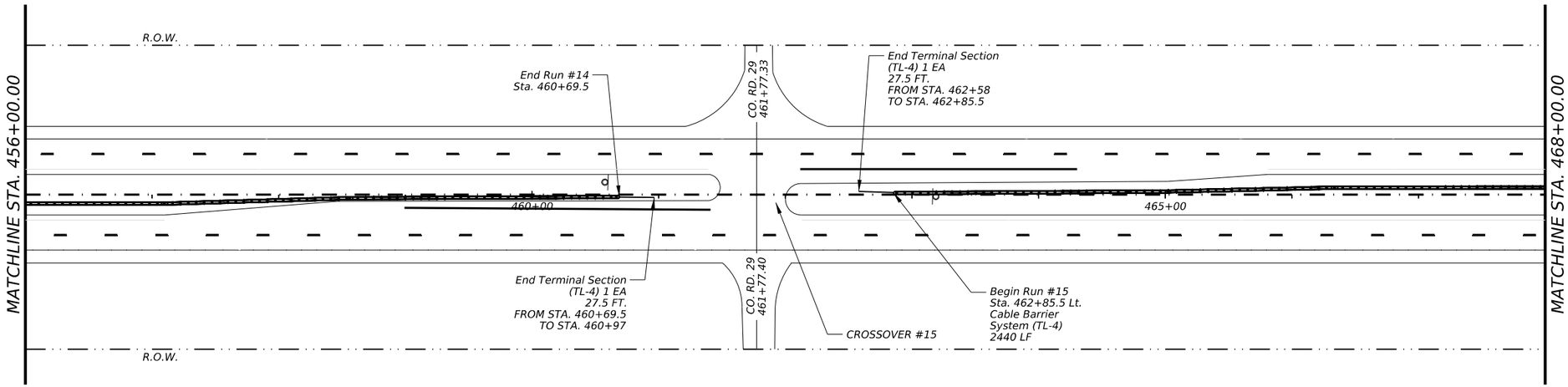

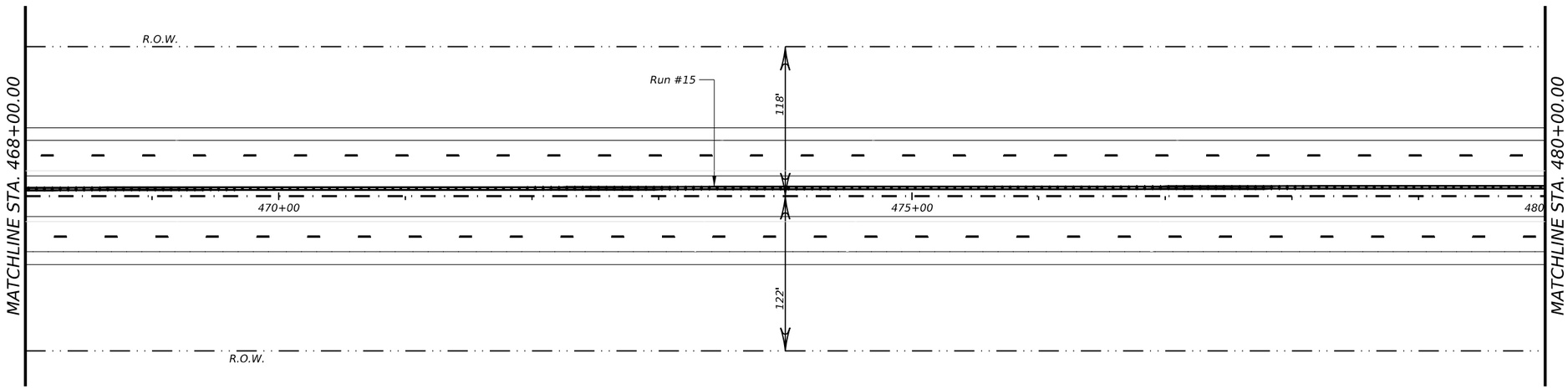

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PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 20 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		151

DATE: 1/30/2024 4:12:38 PM
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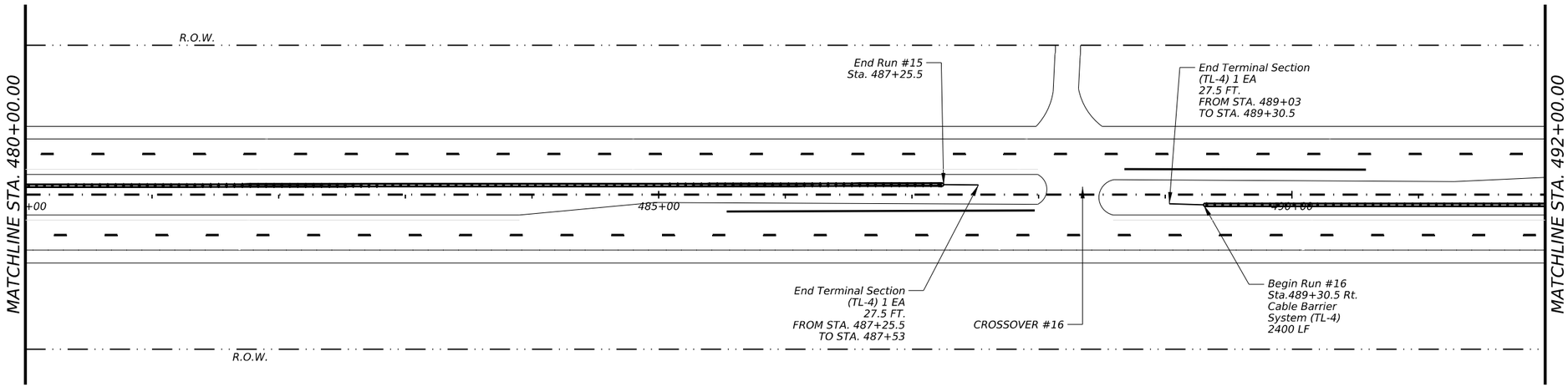

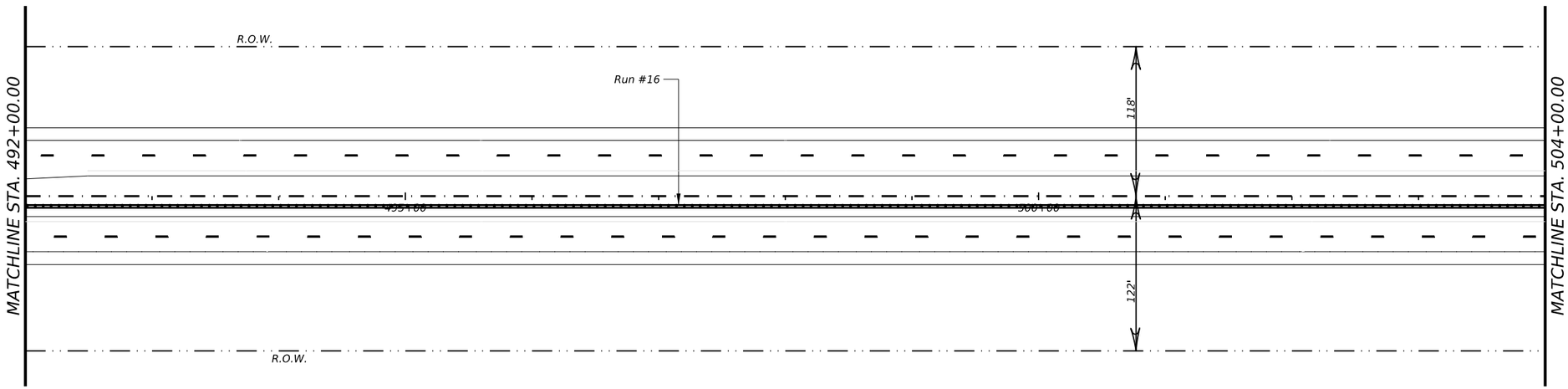

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 21 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		152

DATE: 1/30/2024 4:13:07 PM
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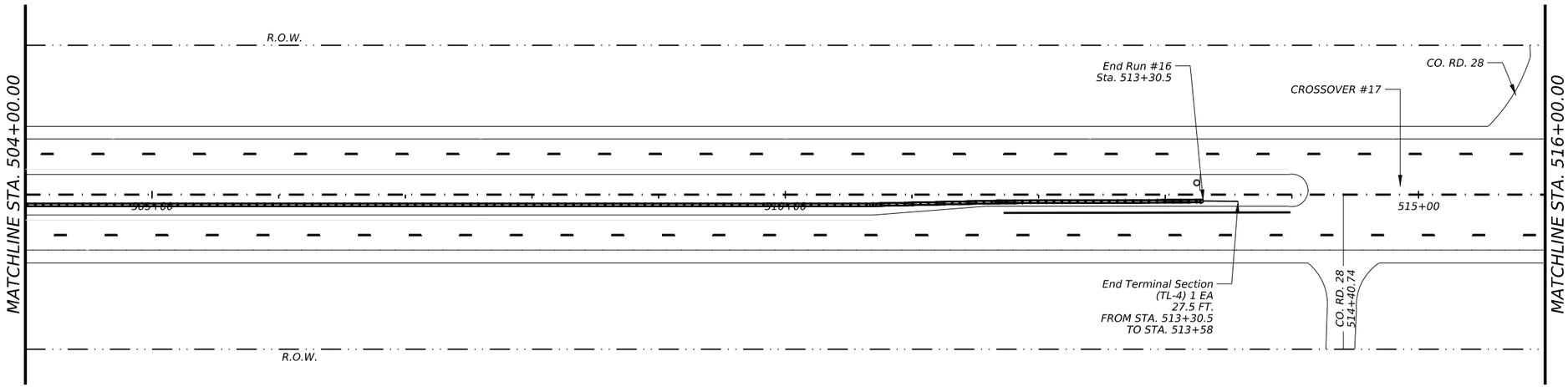

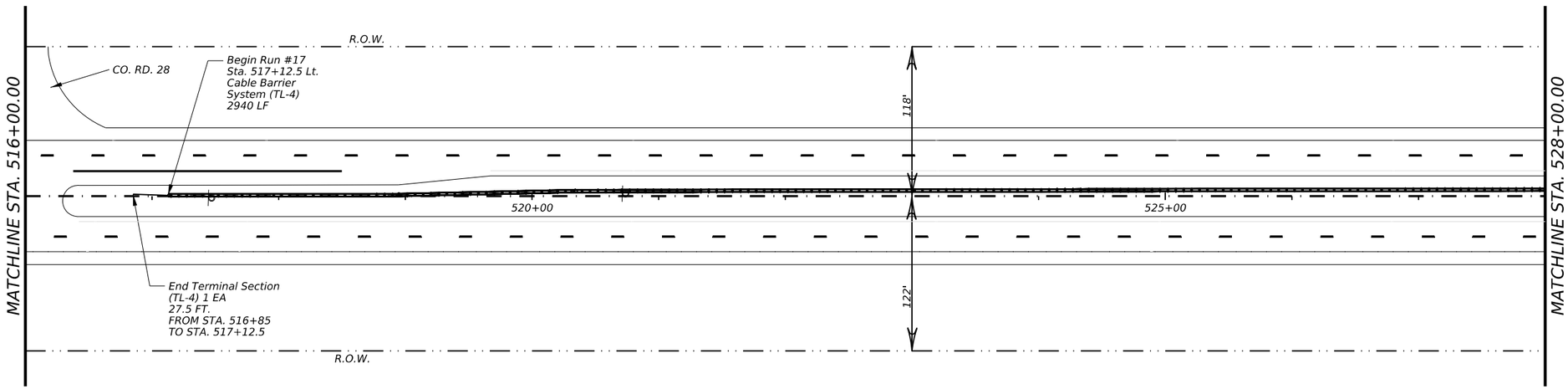

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PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 22 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		153

DATE: 1/30/2024 4:13:26 PM
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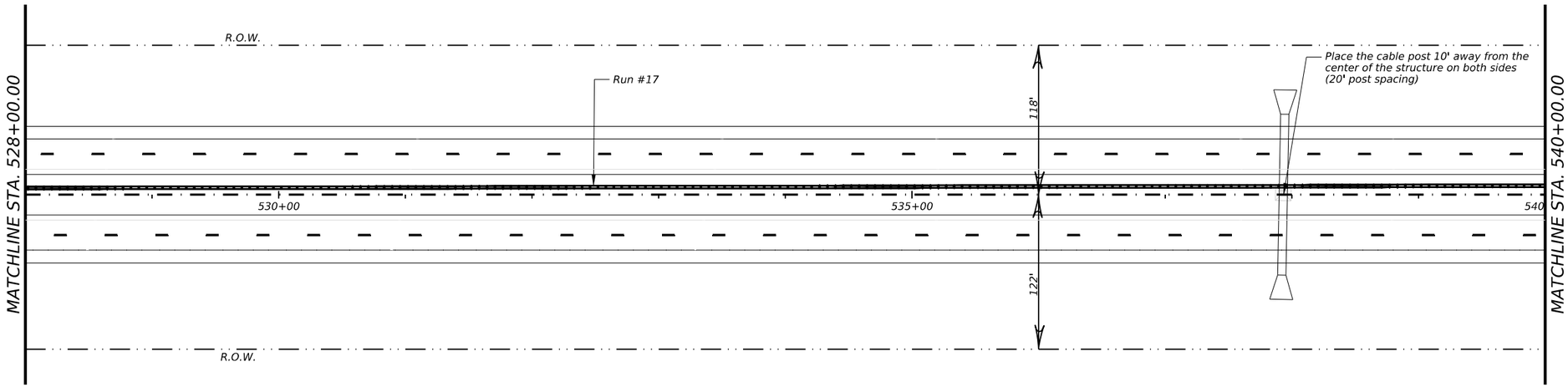

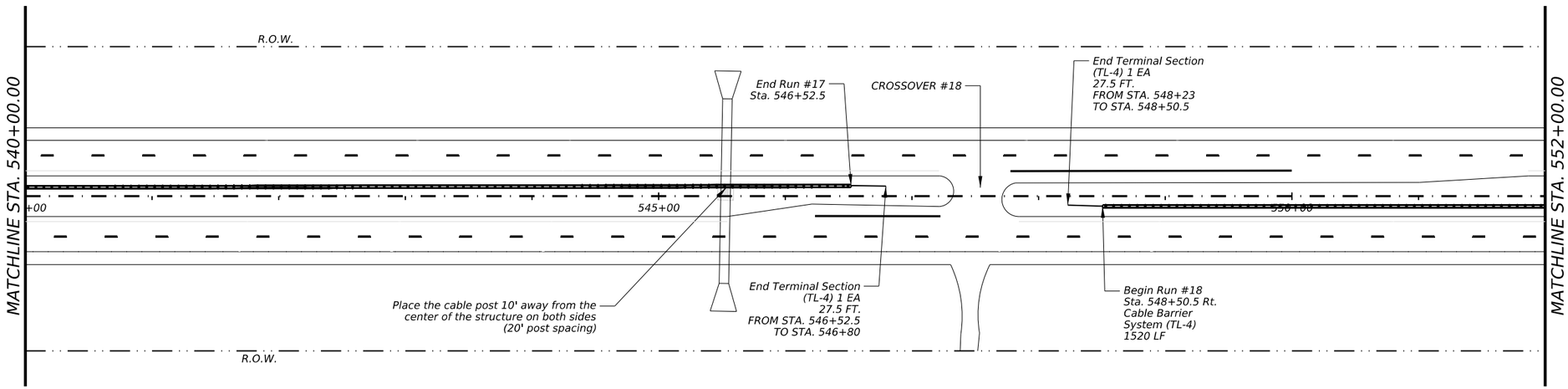

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PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 23 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		154

DATE: 1/30/2024 4:13:42 PM
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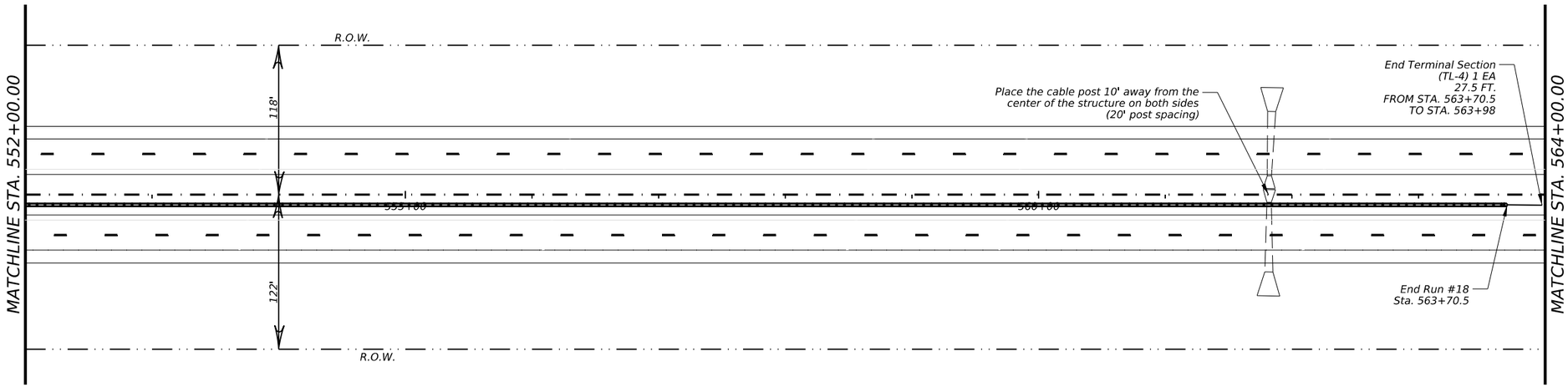

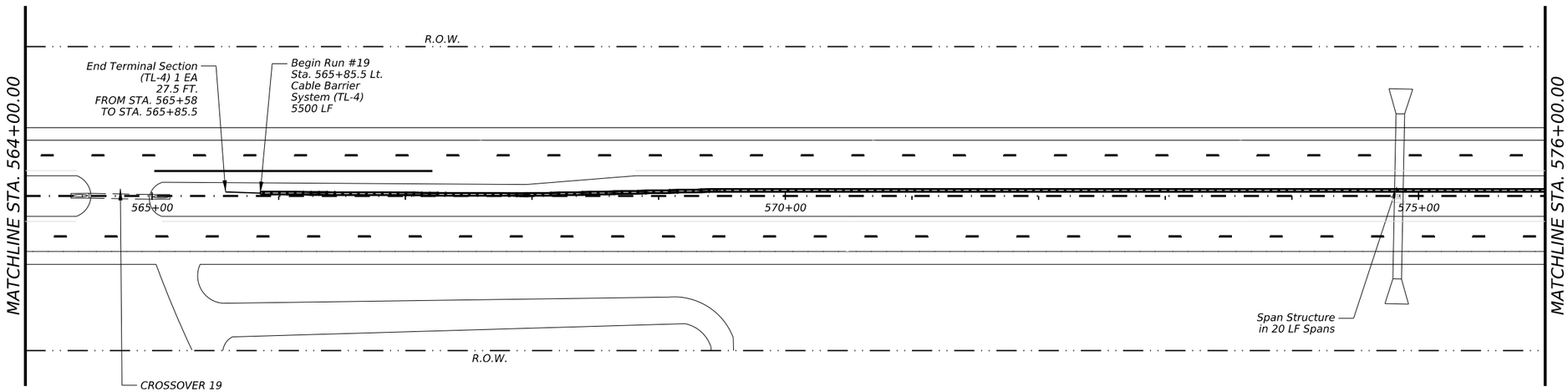

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 24 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		155

DATE: 1/30/2024 4:13:56 PM
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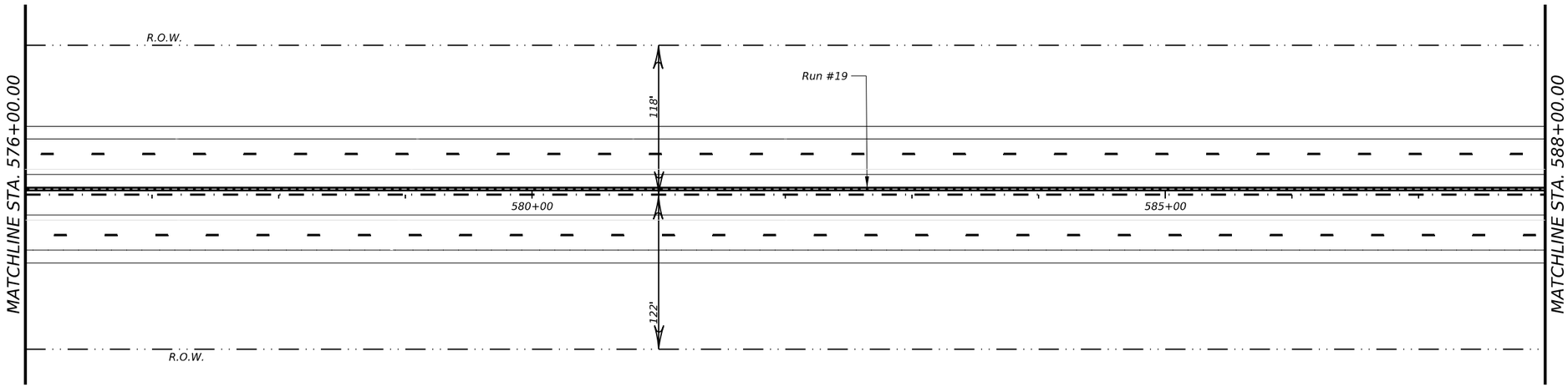

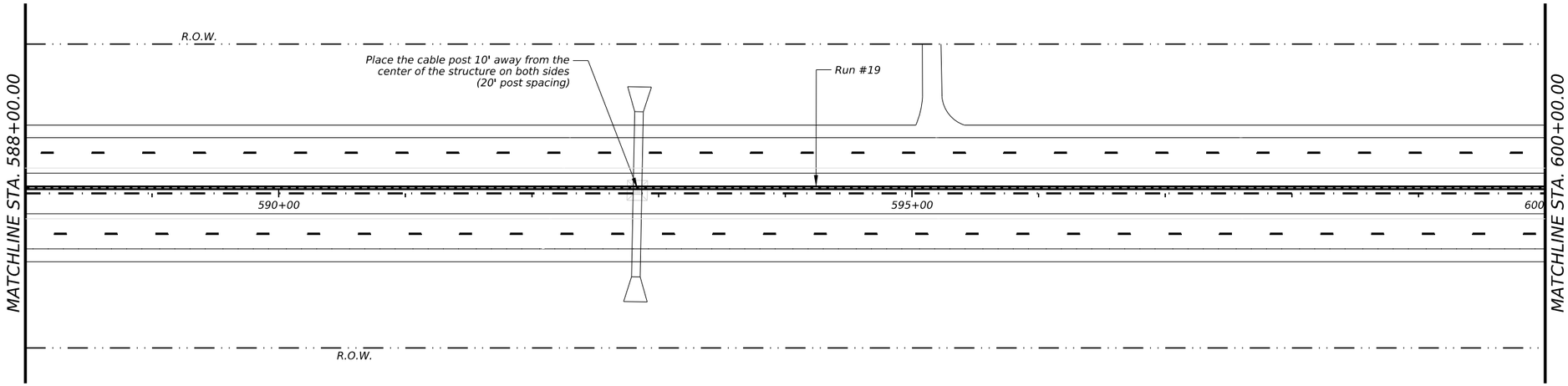

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 25 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		156

DATE: 1/30/2024 4:14:13 PM
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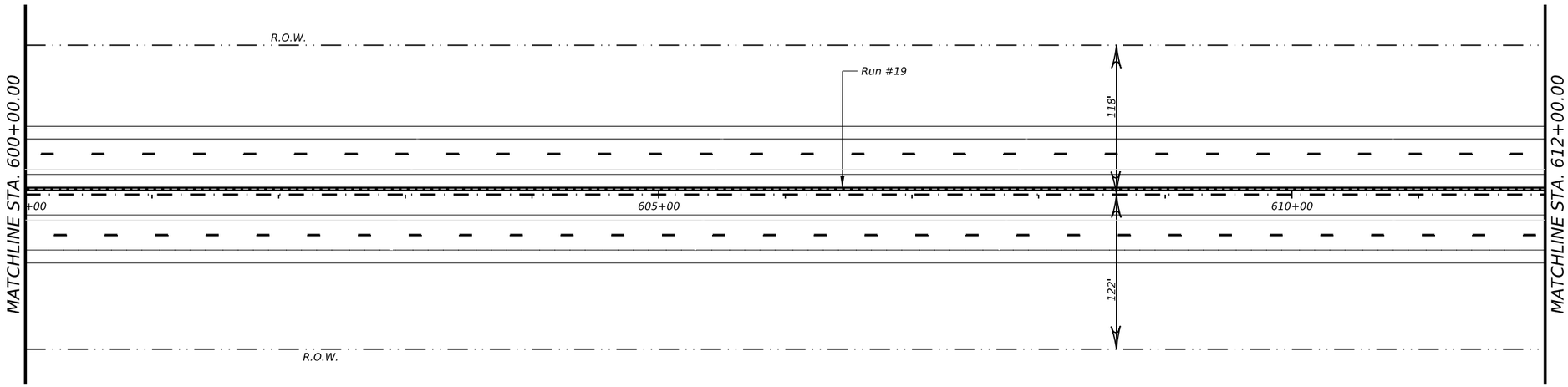

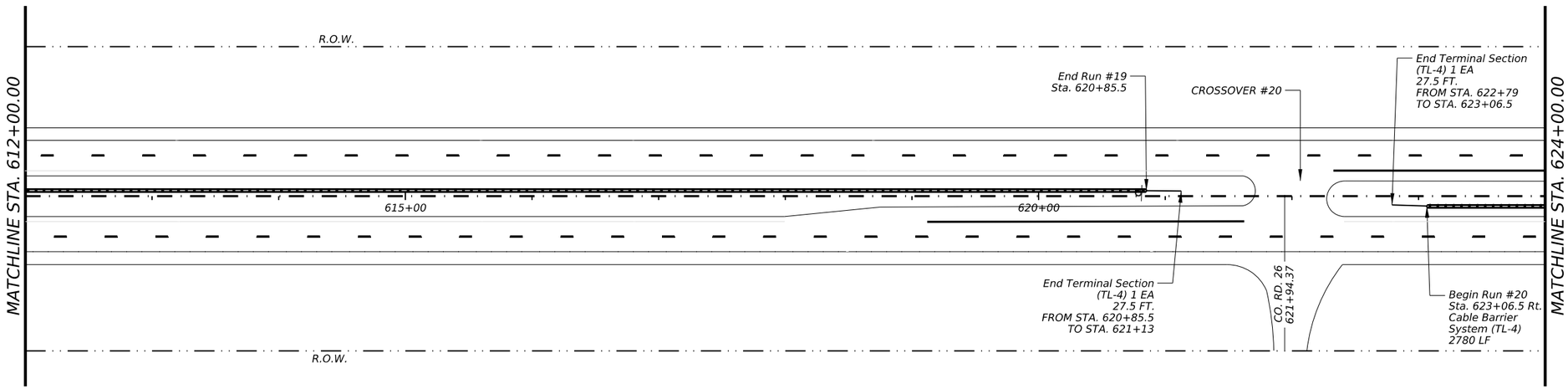

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		157

DATE: 1/30/2024 4:14:27 PM
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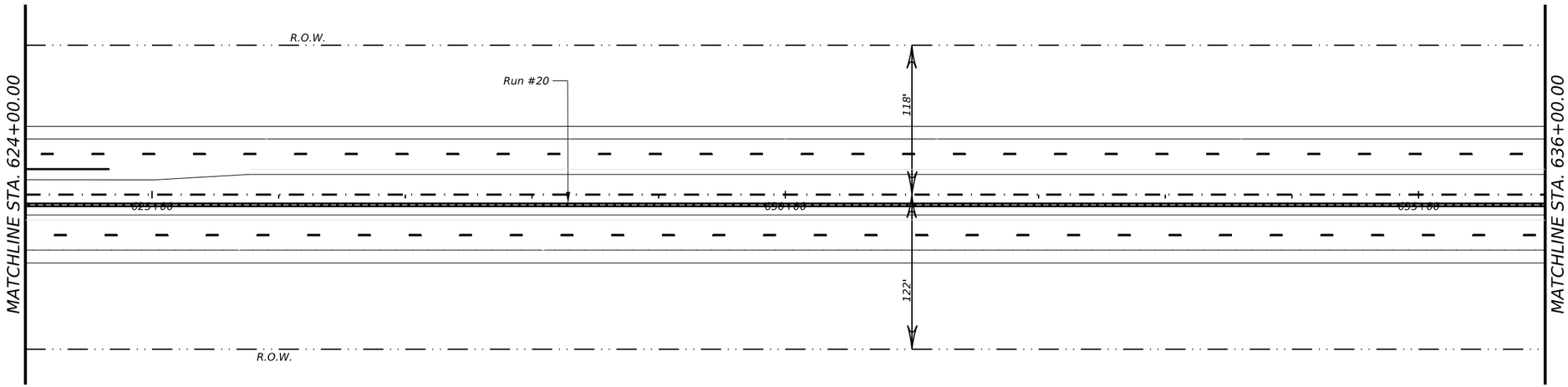

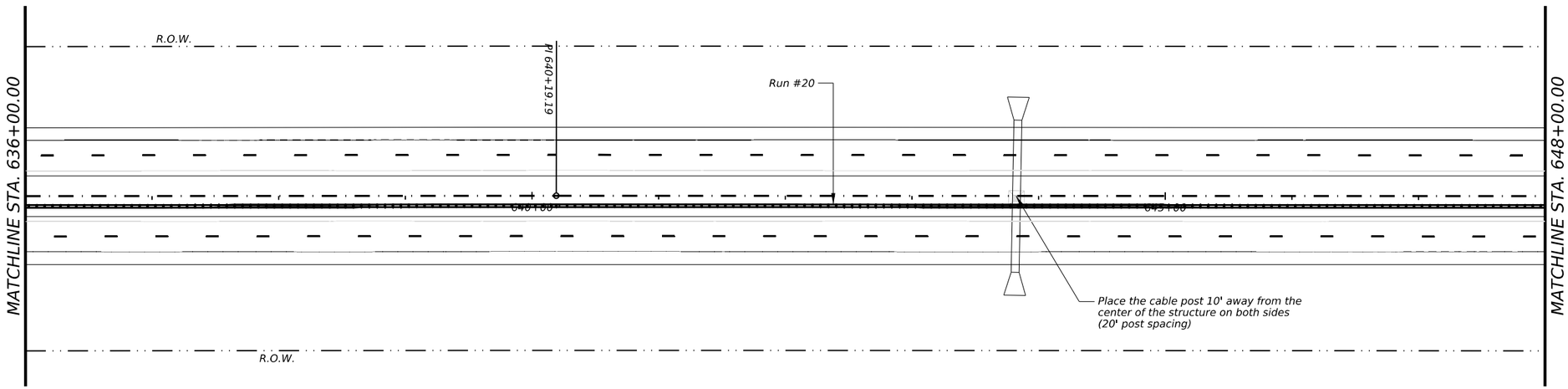

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 27 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		158

DATE: 1/30/2024 4:14:45 PM
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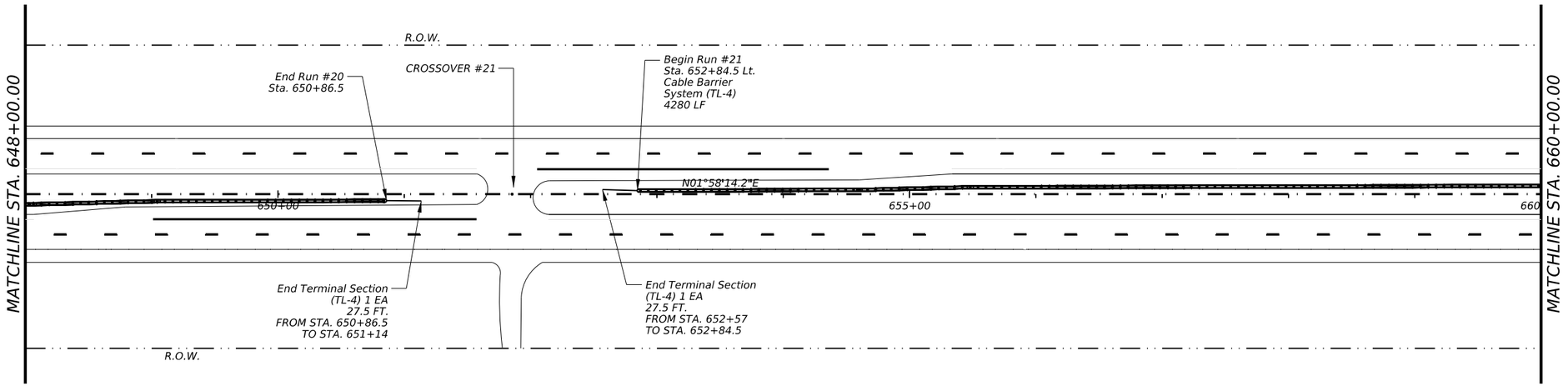

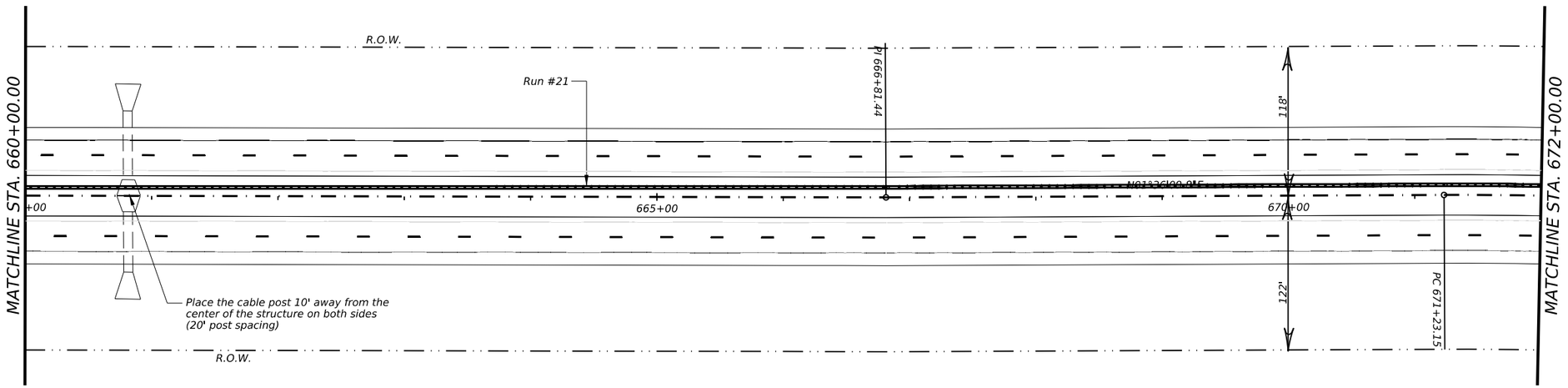

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		159

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DATE: 1/30/2024 4:15:01 PM
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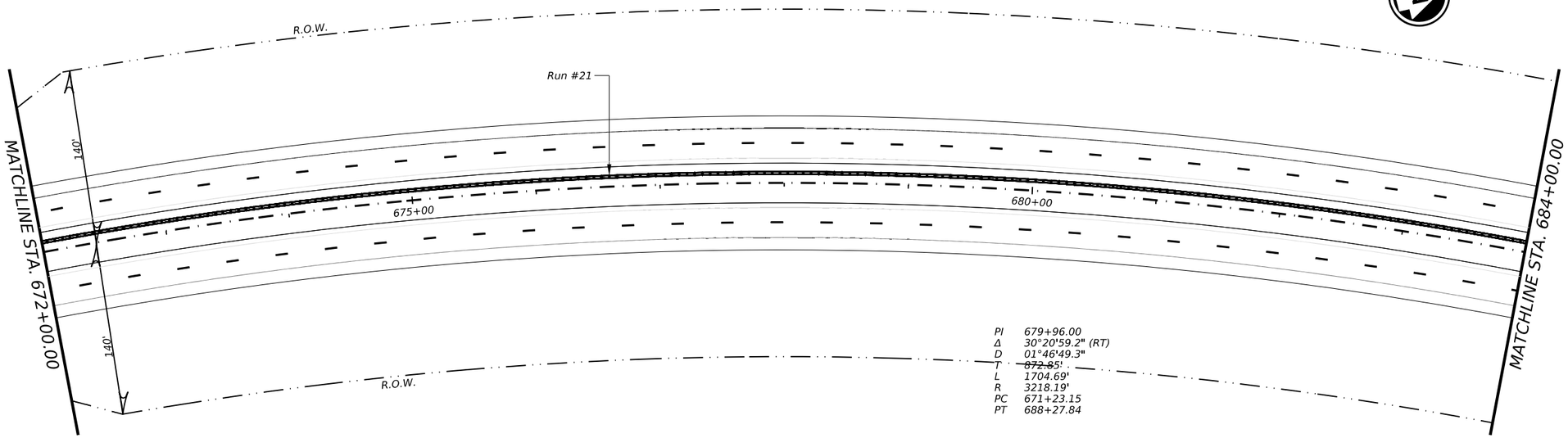

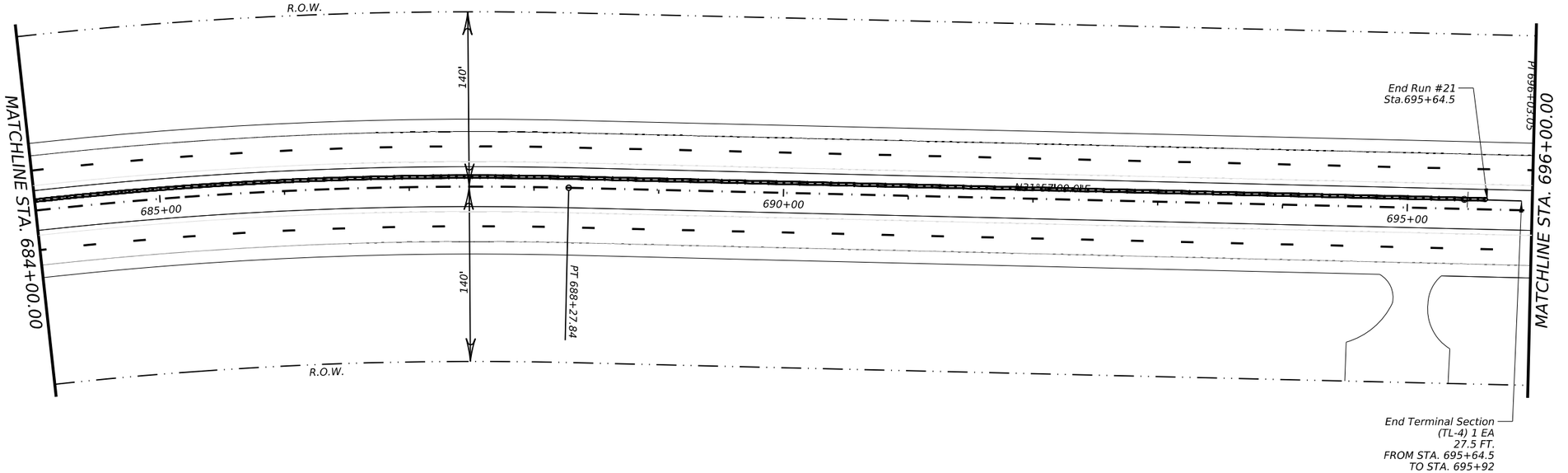

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 29 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		160

DATE: 2/2/2024 2:42:09 PM
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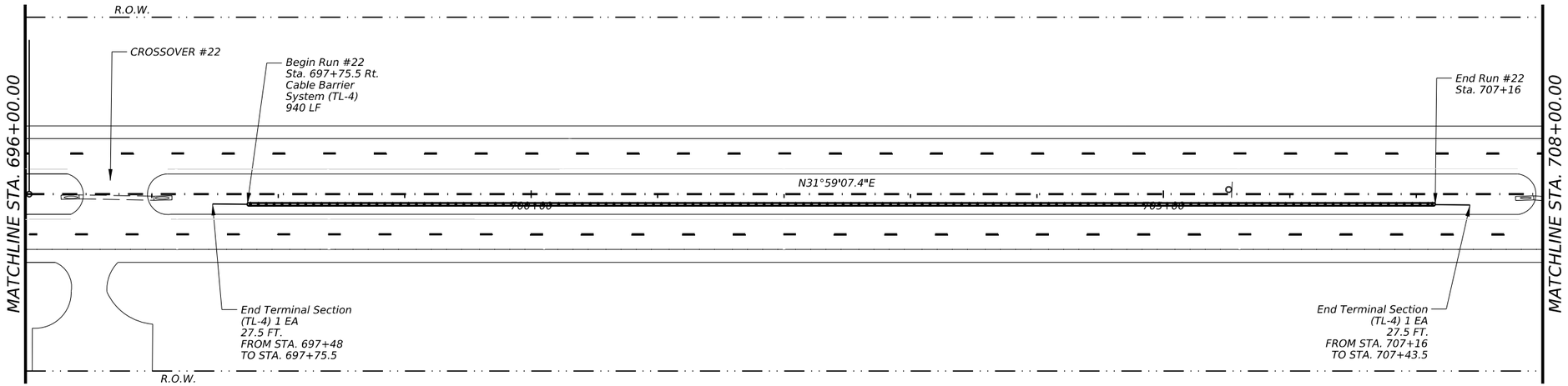

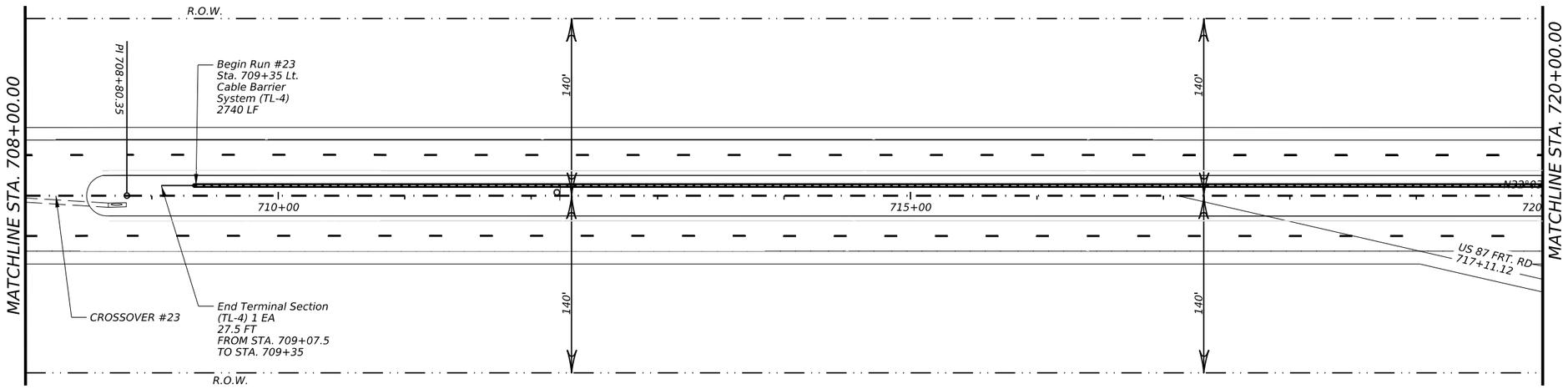

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 30 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		161

DATE: 1/30/2024 4:15:32 PM
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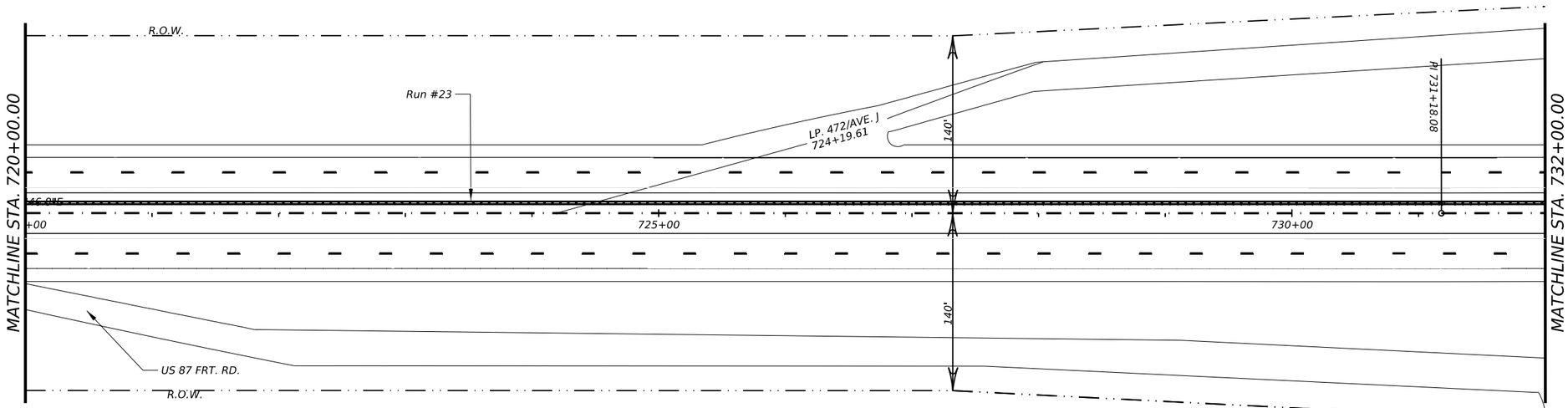

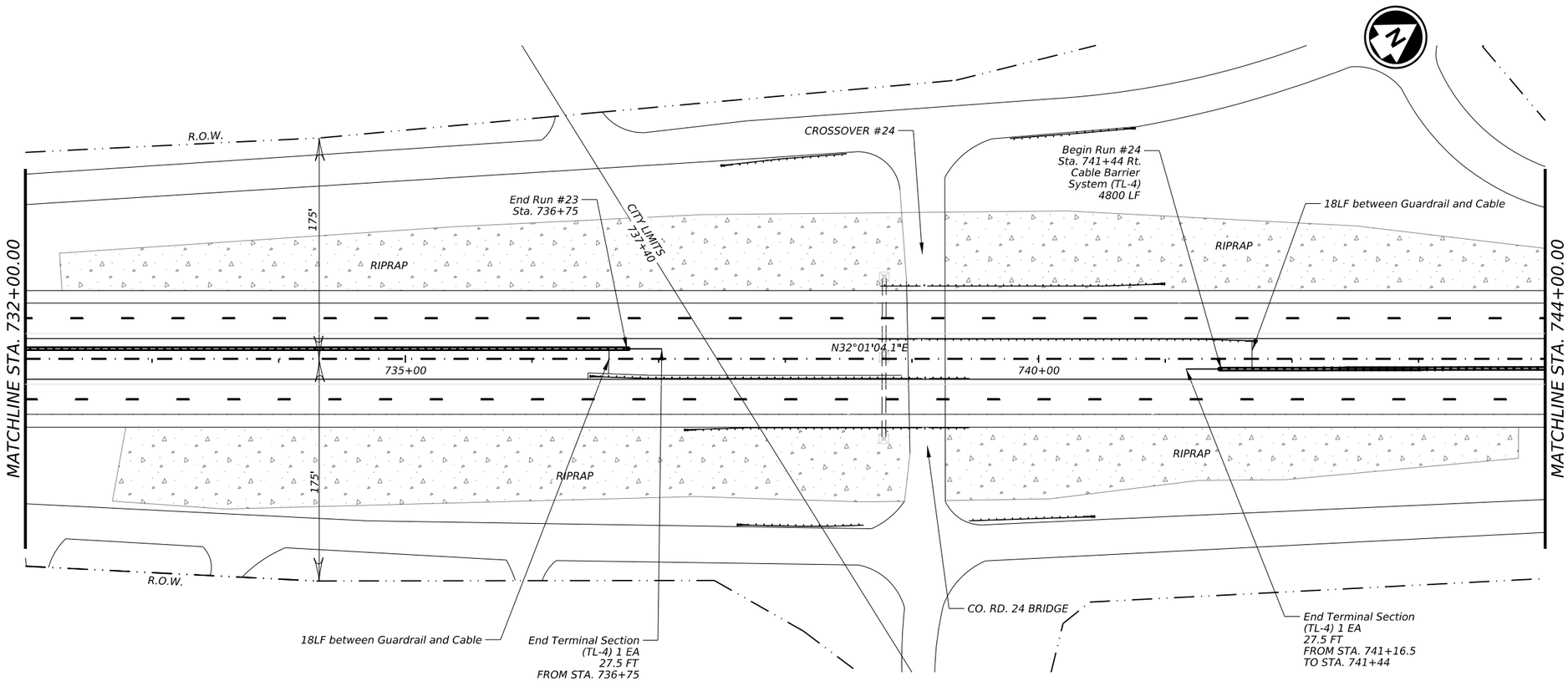

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 31 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		162

DATE: 1/30/2024 4:15:52 PM
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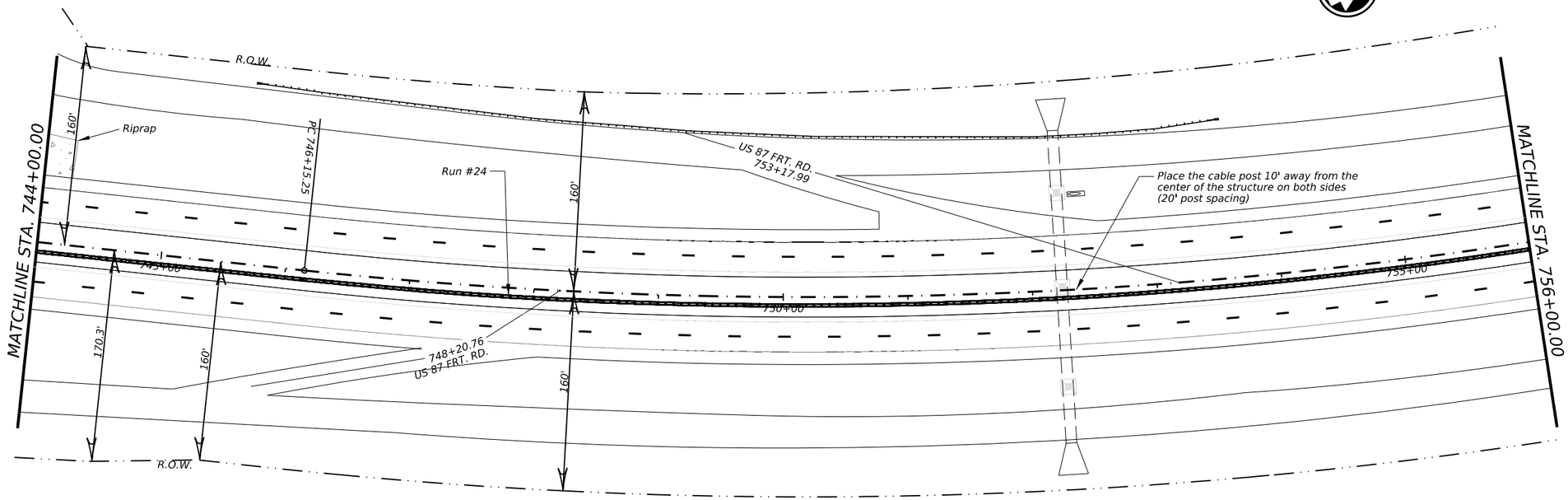

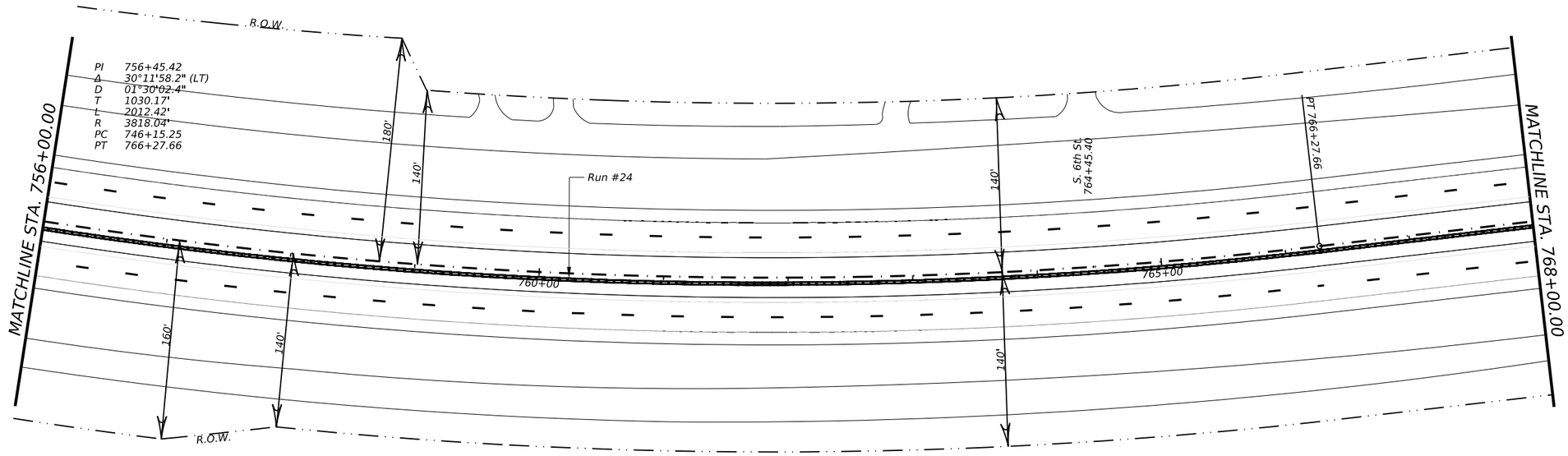

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US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 32 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		163

DATE: 1/30/2024 4:16:10 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/3. Roadway/US87_PLAN_SHEET.dgn

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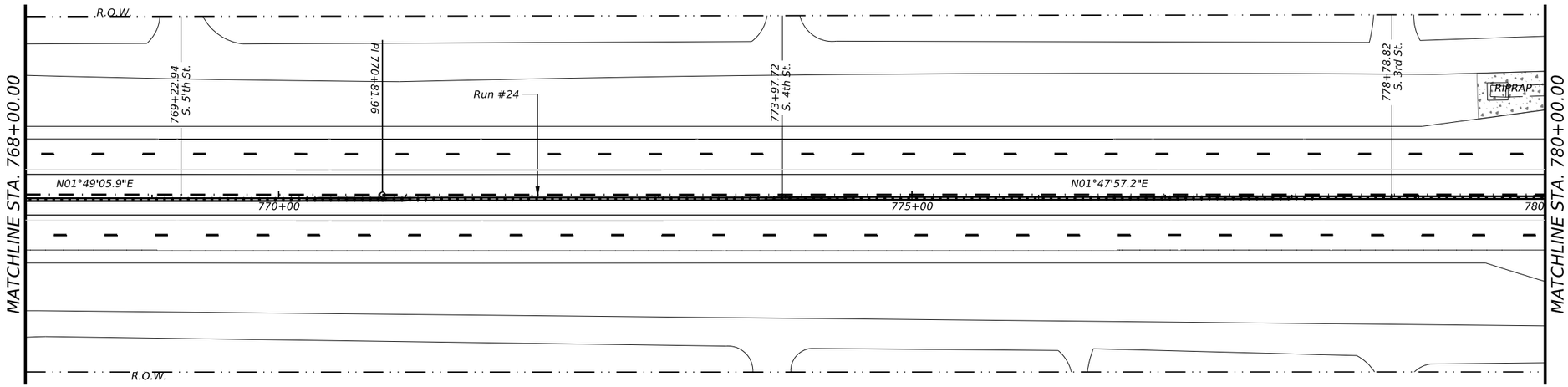

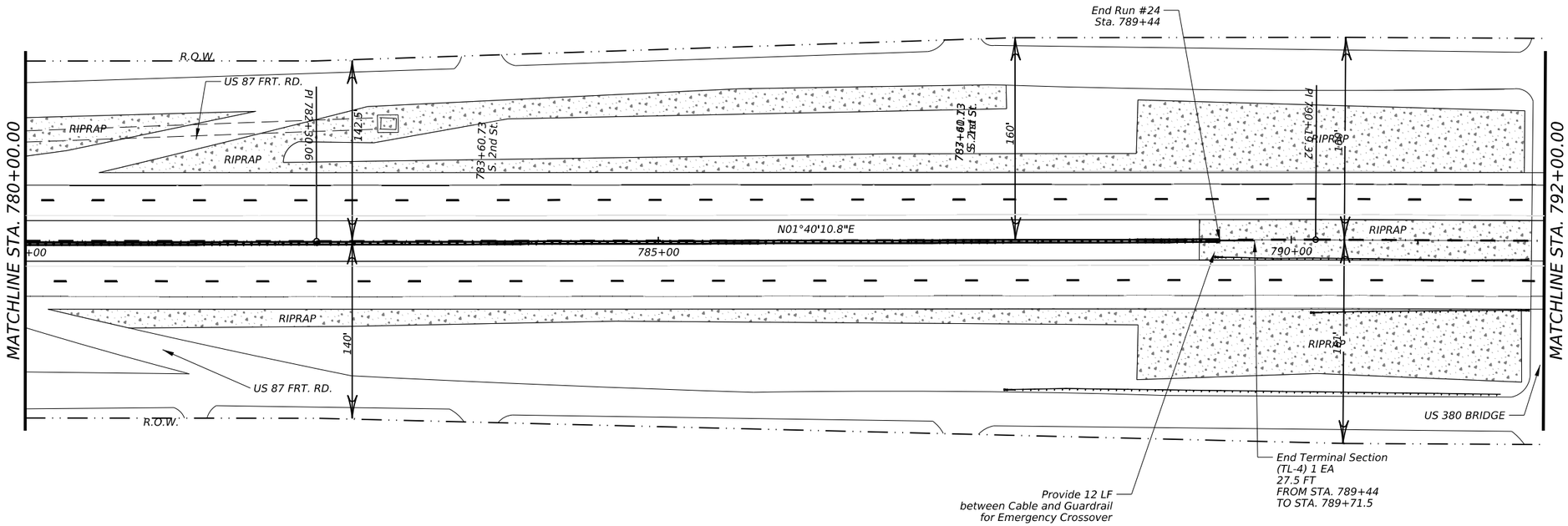

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PROFESSIONAL ENGINEER

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1/26/2024

Texas Department of Transportation

US 84, ETC.

PLAN VIEW
(US 87)
Scale: 1"=100'

SHEET 33 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		164

DATE: 1/30/2024 4:16:32 PM
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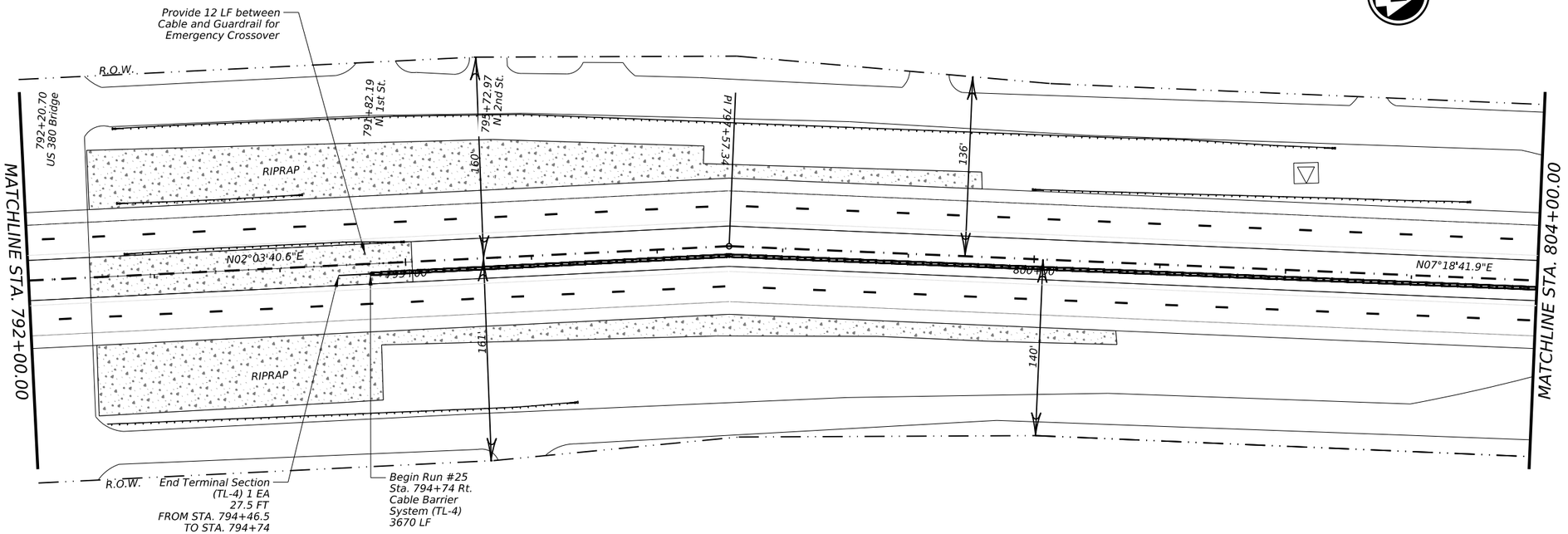

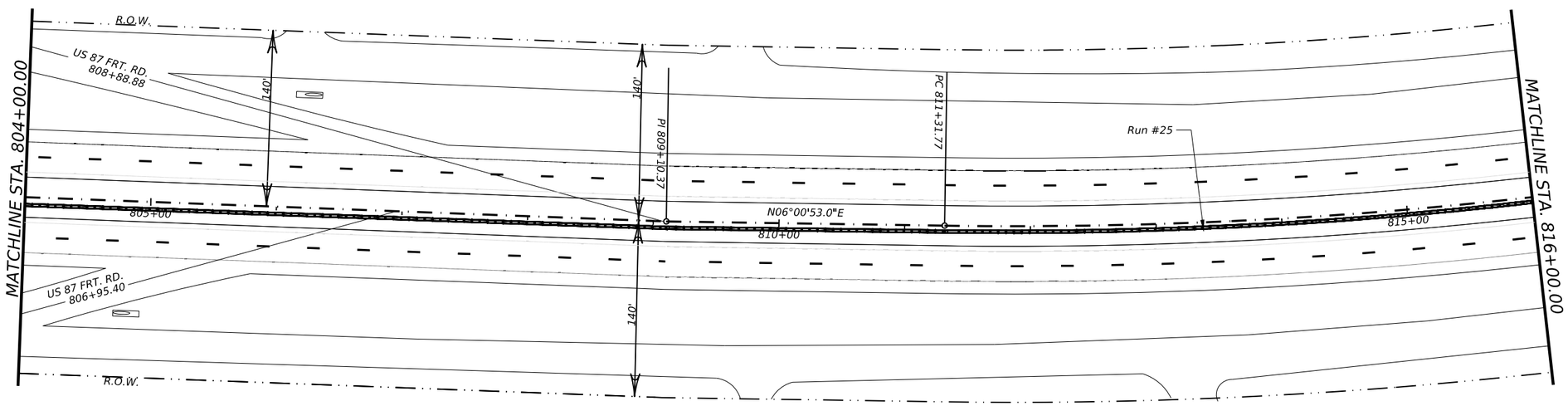

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PLAN VIEW (US 87)

Scale: 1"=100'

SHEET 34 OF 35

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		165

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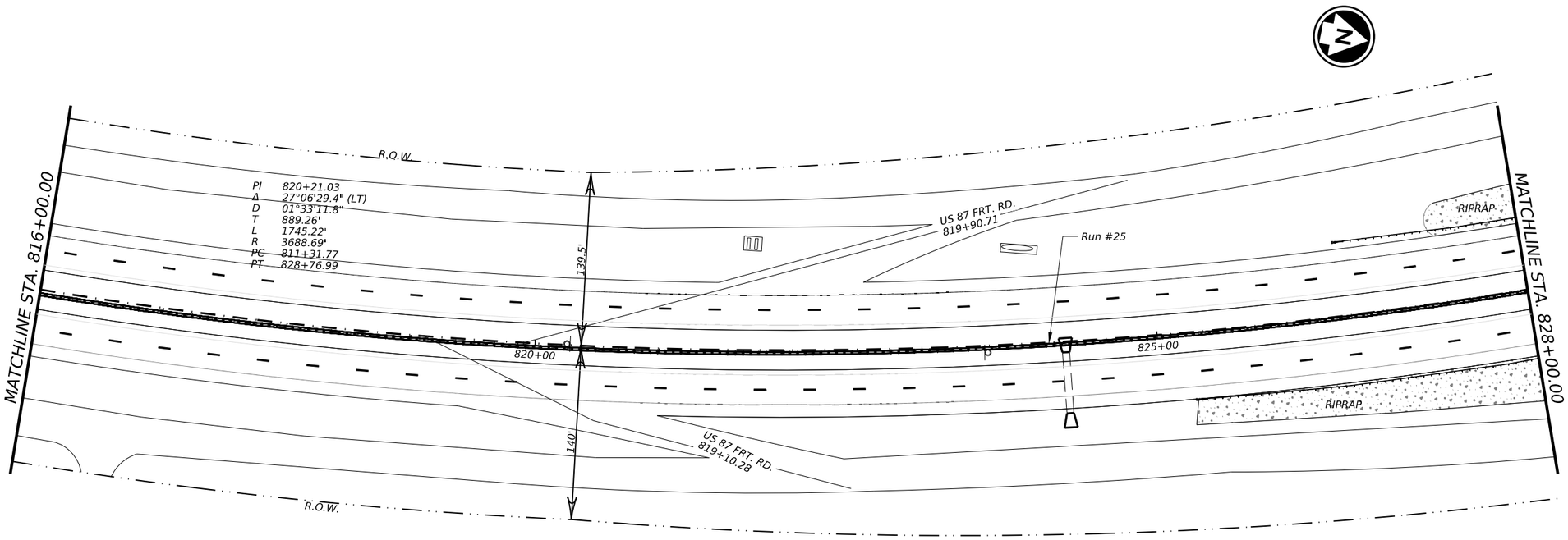

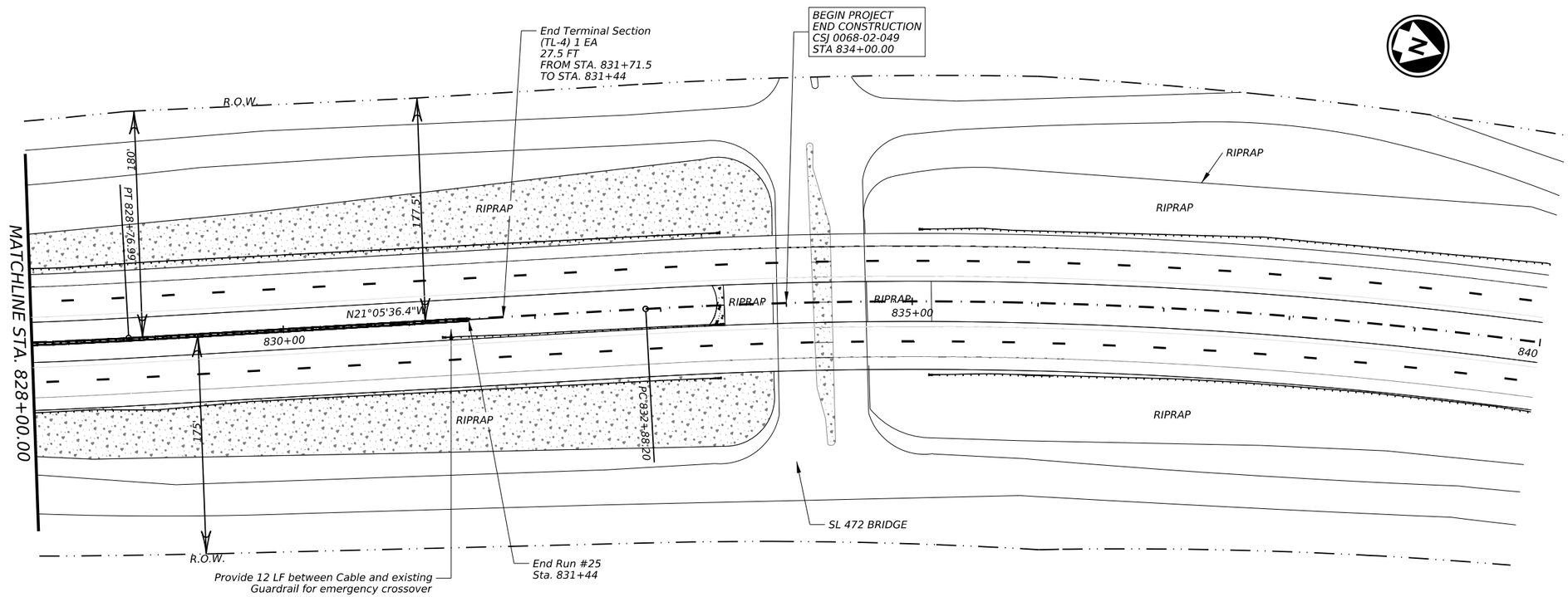

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PLAN VIEW
(US 87)
Scale: 1"=100'

CONT	SECT	JOB	HIGHWAY
0053	01	036	US 84, etc.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK		166

DATE: 2/1/2024 6:20:10 PM
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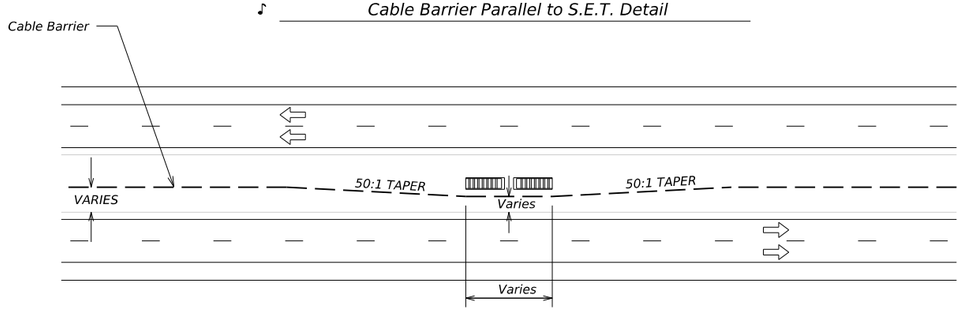
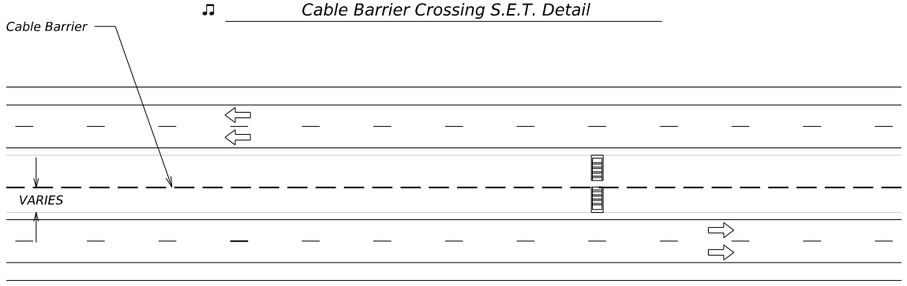
CK: DW: CK: DW:

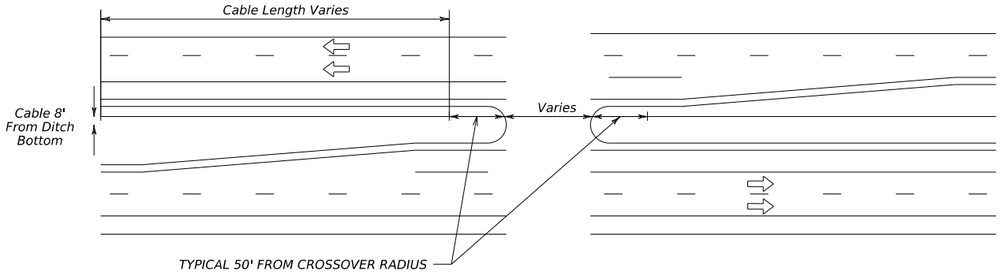
Cable Barrier Parallel to S.E.T. Detail



Cable Barrier Crossing S.E.T. Detail



TERMINAL SECTION AT CROSSOVER DETAIL

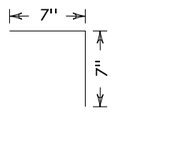


♪ *Place concrete riprap connecting median inlets and structures parallel to the road, to the adjacent cable barrier mow strip.*

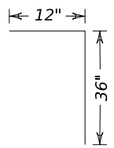
♫ *Do not continue mowstrip through an S.E.T. perpendicular to the cable barrier. Run the cable according to the plans over the S.E.T. Should it become apparent a that a cable post will come into conflict with an S.E.T., place the post on the upstream side relative to the direction the cable will be tensioned; i.e. maintain cable post spacing at a length not greater than dictated in the applicable standard(s), and shorten the distance between the posts as needed to achieve no conflict with the S.E.T.*

♫ *Length of overlap is typically 80', plus the length of anchor terminals; field conditions may dictate otherwise.*

♫♫ *Length of cable break will be field determined based upon median width, TxDOT, Law Enforcement input and any applicable sight distance considerations.*

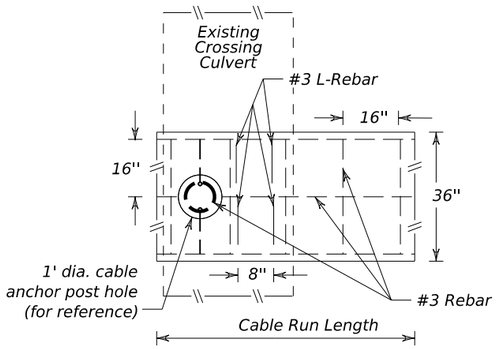


3 L-REBAR DETAIL



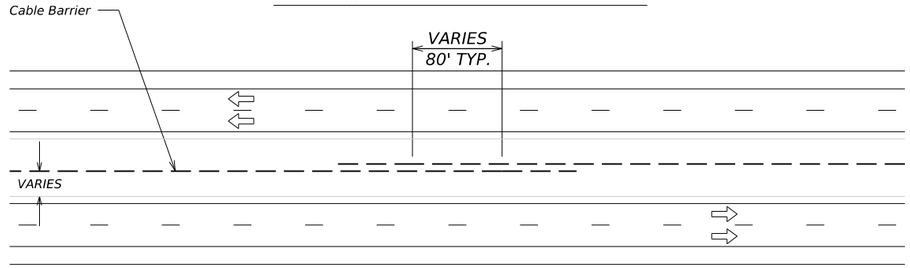
3 BAR A REBAR (2 EA.)

3 BAR B REBAR (6 EA.)

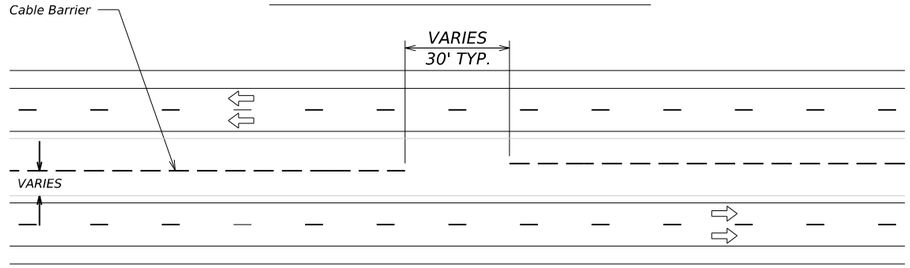


REBAR DETAIL

Cable Barrier Overlap Detail (opposite configuration similar)

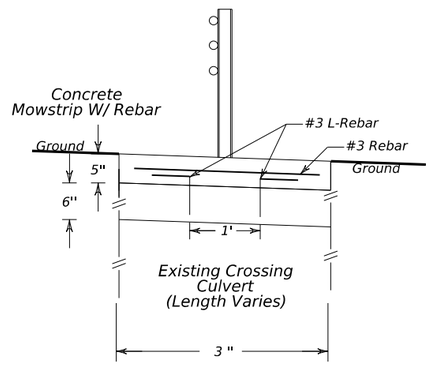


Cable Barrier Break Detail (opposite configuration similar)

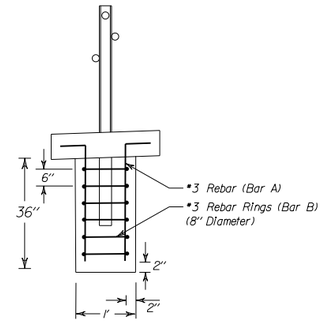


Notes:

1. *Riprap mowstrip shall be Class A concrete 3' wide and be 5'' thick for the entire length of a cable run. Place mowstrip 2' beyond all anchor terminals.*
2. *Number 3 reinforcing steel shall be used for all riprap mowstrip. No welded wire, wire mesh, or fiber-reinforced concrete will be allowed.*
3. *See steel detail below for dimensions and spacing.*
4. *Drill shafts shall be TY A concrete and placed in accordance with manufacturer's recommendations.*
5. *Provide expansion material at joints 100' apart for the length of the mowstrip.*
6. *Except where expansion joints are located, place tool joints every 20' for the length of the mowstrip.*
7. *Cold weather protection requirements will apply for mowstrip placement.*
8. *Riprap cross-slope shall match existing front slope; ensure water does not pond between mowstrip and edge of pavement.*
9. *Limits of pay for windrows vary. Additional soil removed will not be paid for but will be returned to existing conditions at no cost to the Department.*
10. *Provide 2'' of clear cover for rebar in the mowstrip.*
11. *The center piece of longitudinal rebar shall be cut then resumed after any cable anchor post holes. A maximum length of 16'' will be permissible.*
12. *Tie all transverse steel pieces at all 3 longitudinal steel pieces.*
13. *Make sure ALL object markers are placed according to cable barrier standards and object marker standards.*
14. *If field conditions differ from the plans, promptly notify the Engineer.*
15. *Blade and backfill daily with cable mowstrip construction.*
16. *Tie mowstrip into top of culvert boxes with 6'' x 6'' #3 L-Bars spaced @ 8'' .*
17. *At least one post needs to be bolted into the top of any existing culverts.*



CROSSING CULVERT DETAIL (PROFILE)



DRILLED SHAFT DETAIL

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CABLE BARRIER DETAILS

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		167

DATE: 2/2/2024 1:29:37 PM
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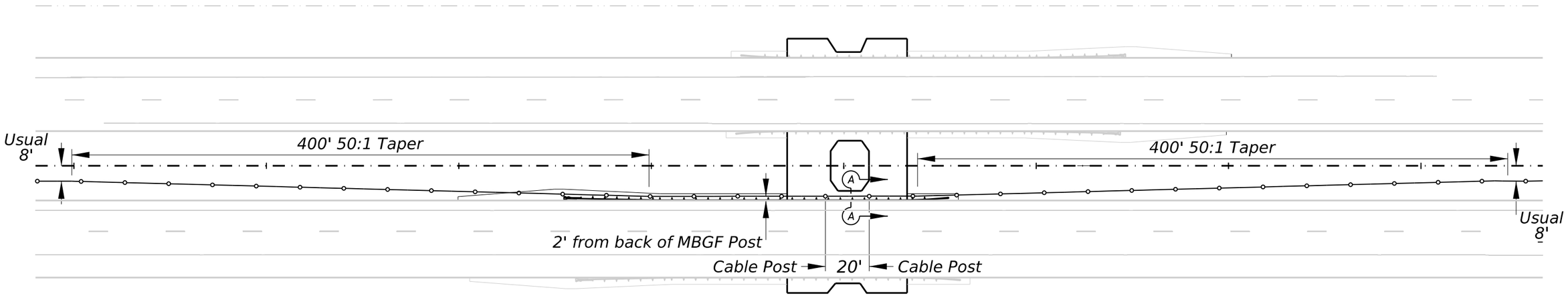
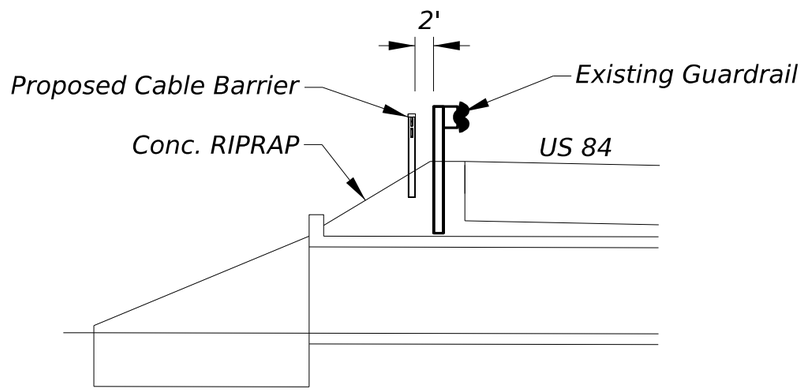


Notes:

Span the culvert in 20 LF spans at 2 LF behind Existing MBGF.

In order to span the culvert, place the cable posts in the riprap on either side of the culvert box.

ONLY APPLICABLE TO NON-BRIDGE CLASS CULVERTS.



Section A-A
Cable Barrier Placement

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US 84, ETC.

TYPICAL CABLE BARRIER PLACEMENT ON CULVERT

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		168

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DATE: 1/30/2024
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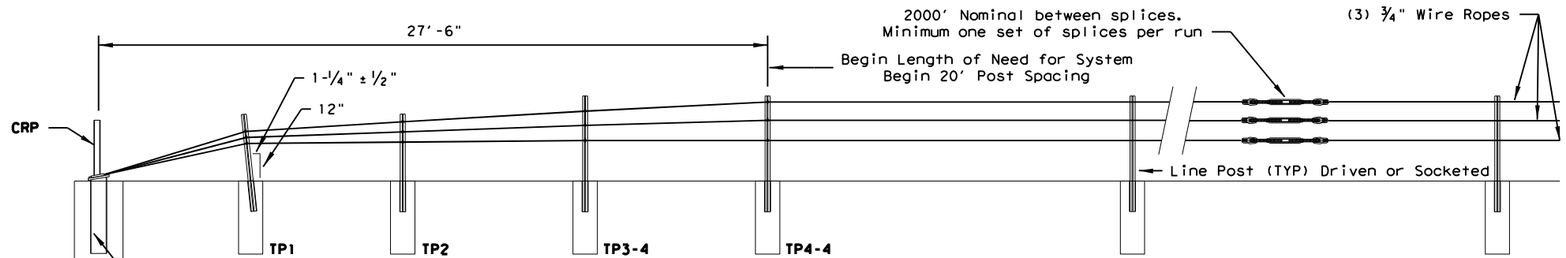
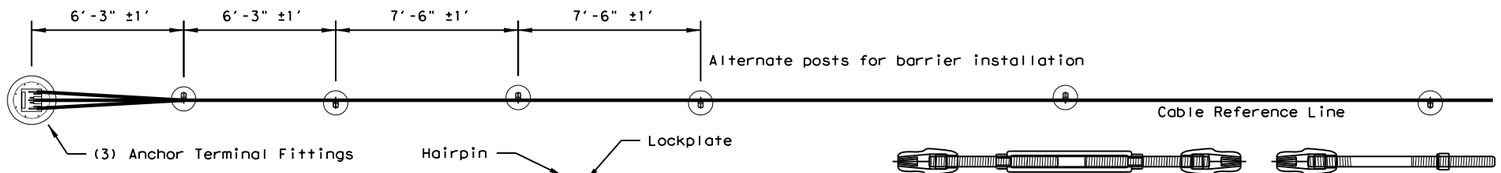
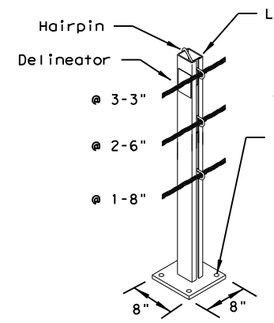
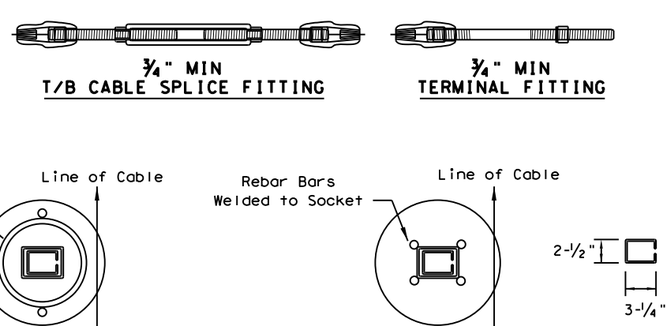
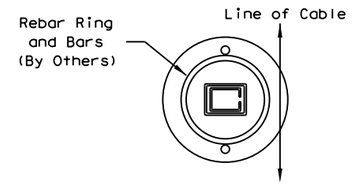




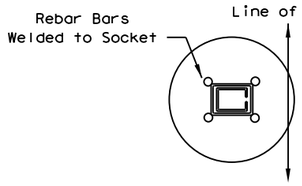


LINE POST
(BASE-PLATED OPTION)
Low-Fill Box Culvert Less than 15" Fill





SECTION A



SECTION B

C-SECTION POST

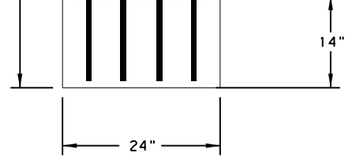
GENERAL NOTES

1. For additional information contact Gibraltar, Inc. at 1-800-495-8957, 830-798-5444, or see the manufacturer's product manual.
2. All concrete shall be CLASS A.
3. The Cable Barrier System shall be installed on shoulders or on medians with slopes of 6:1 or flatter. If installed on slopes steeper than 6:1 up to 4:1 the TL-4 system performs as a TL-3 and Gibraltar must be contacted for various guidelines related to placement.
4. The Cable Barrier System is accepted by the FHWA Test Level - 4.
5. See the Texas MUTCD for proper "Barrier" delineation.
6. Rock Clause: Where solid rock is encountered:
   A. For socketed post, continue digging 12" diameter, 15" deep into rock or the required plan depth, whichever comes first.
   B. For driven post, core drill a 4" diameter hole 18" deep into rock or the required plan depth, whichever comes first.
   C. For Anchor post, continue digging 24" diameter, 30" deep into rock or the required plan depth, whichever comes first.
7. Tolerances:
   * LP = 3" out of plumb, at top
   * Cable height = 1"
   * Anchor Post = 5" off of Cable Reference Line
8. The Gibraltar cable barrier system shall be installed in NCHRP Report 350 standard compacted soil. Soil must be well drained.
9. All non-welded rebar by others.
10. Minimum recommended line post foundation.
    A. Without mowstrip, 36" Deep x 12" diameter foundations with #3 rebar ring x 8" diameter with two #4 rebar vertical bars 30" long
    B. With 4" minimum depth hot mix asphalt, 30" deep x 12" diameter foundations with #3 rebar ring x 8" diameter with two #4 rebar vertical bars 30" long.
    C. With 3" minimum depth concrete mowstrip, 24" deep x 12" diameter foundations. (No rebar required)
    D. Direct drive post 42" deep.

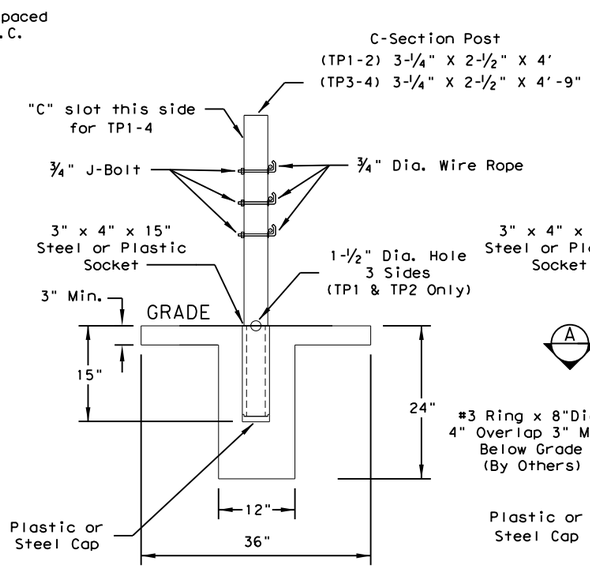
CABLE TENSION CHART*	
-10 °F	8000
0 °F	7600
10 °F	7200
20 °F	6800
30 °F	6400
40 °F	6000
50 °F	5600
60 °F	5200
70 °F	4800
80 °F	4400
90 °F	4000
100 °F	3600
110 °F	3200

DEFLECTION	
Deflection	Post Spacing
8'-0"	20 FT
7'-0"	12 FT
6'-8"	10 FT

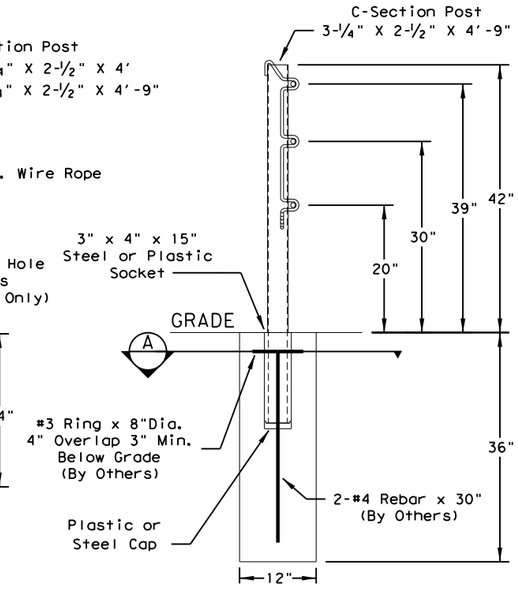
* Allowable Deviation from Chart +/- 10%



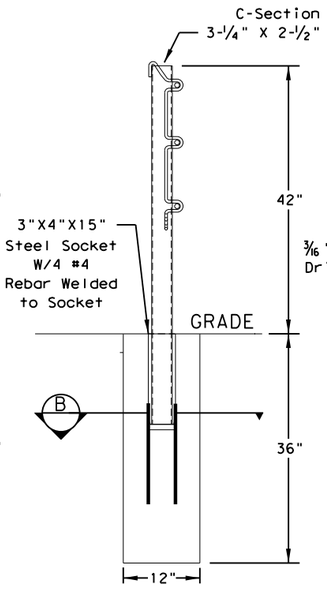
CABLE RELEASE AND ANCHOR POST



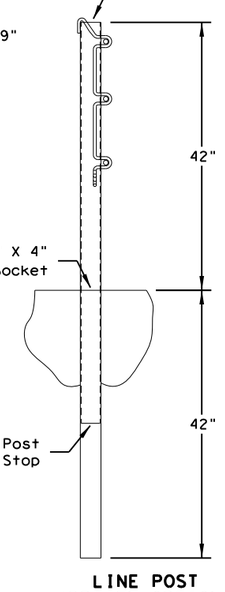
TERMINAL POST
(SHOWN WITH CONCRETE MOWSTRIP)
(Shown with Tube Plate Option)
(See Note 10)



LINE POST SOCKETED
(Shown with Rebar Ring/Bars Socket Option)
(See Note 9)



LINE POST SOCKETED
(Shown with Welded Rebar Socket Option)
(See Note 9)



LINE POST
(DRIVEN OPTION)
(Shown with Driven
Socket Option)
(See Note 9)

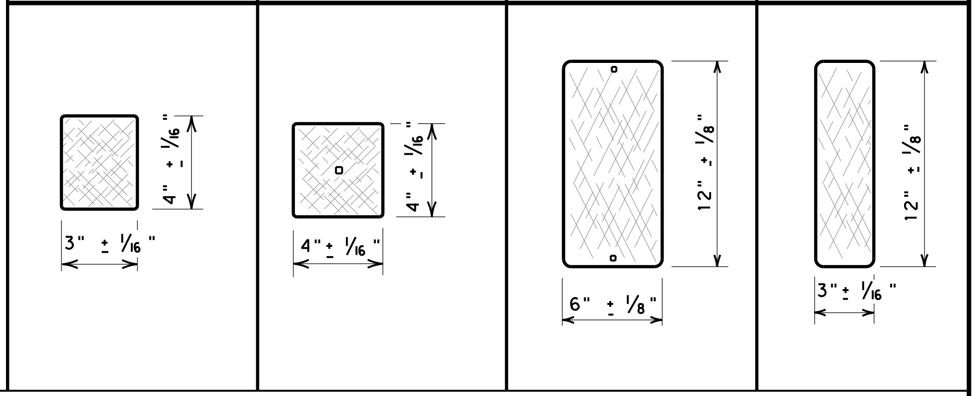
Texas Department of Transportation — Design Division Standard

GIBRALTAR CABLE BARRIER SYSTEM (TL-4)

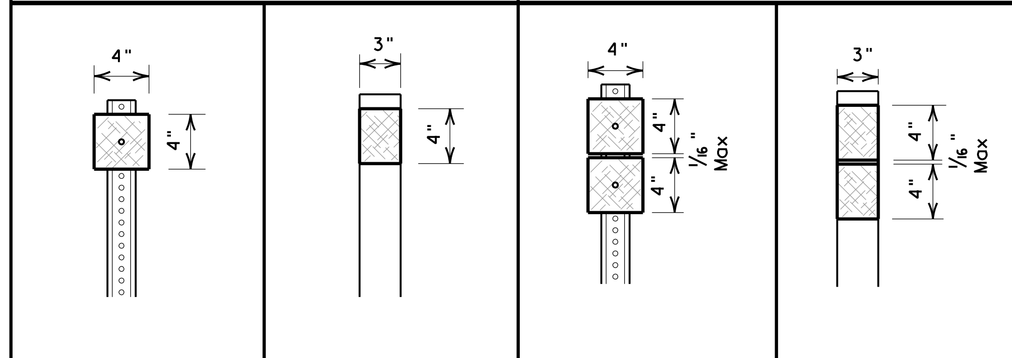
GBRLTR(TL4)-14

FILE: gbrltrt1414.dgn	DN: TxDOT	CK: RM	DW: VP	CK:
©TxDOT: March 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
	DIST	COUNTY		SHEET NO.
	LBB	LUBBOCK, ETC.		169

REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

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

DELINEATORS

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

D & OM DESCRIPTIVE CODES

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

NUMBER OF REFLECTORS
S = Single
D = Double

COLOR OF REFLECTORS
W = White
Y = Yellow
R = Red

REFLECTOR UNIT SIZE
1 or 2

TYPE OF POST OR DELINEATOR
WC = Wing Channel Post
YFLX = Yellow Flexible Post
WFLX = White Flexible Post
BRF = Barrier Reflector

TYPE OF MOUNT
GND = Embedded (drivable or set in concrete)
CTB = Concrete Barrier Mount
GF1 or GF2 = Guard Fence Attachment
SRF = Surface Mount

DIRECTION
If Required
BI = Bi-Directional
BR = Bi-Directional with red on back

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

TYPE OF OBJECT MARKER
1, 2, 3, or 4

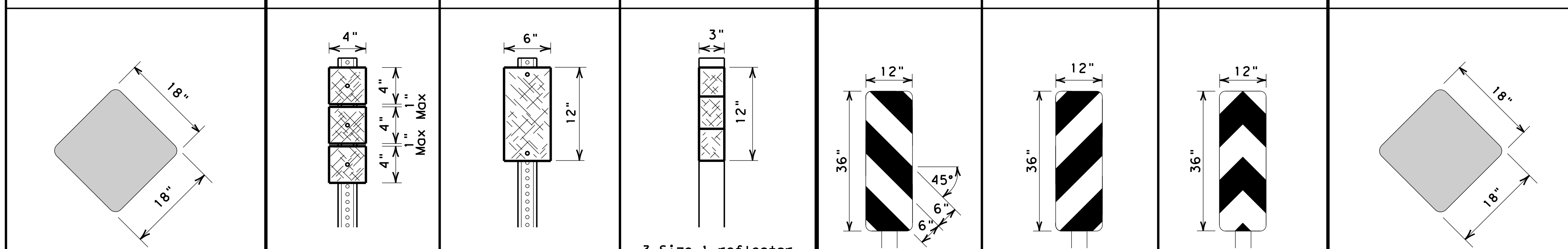
NUMBER OF REFLECTORS OR DIRECTION
X = 3-Size 2 reflector units (Type 2 only)
Y = 1-Size 3 reflector unit (Type 2 only)
Z = 3-Size 1 or 1-Size 4 reflector unit(s)(Type 2 only)
L = Left Side (Type 3 Object Marker only)
R = Right Side (Type 3 Object Marker only)
C = Center (Type 3 Object Marker only)

TYPE OF POST
WC = Wing Channel Post
WFLX = White Flexible Post
TWT = Thin Walled Tubing

TYPE OF MOUNT
GND = Embedded (drivable)
SRF = Surface Mount
WAS = Wedge Anchor Steel
WAP = Wedge Anchor Plastic

DIRECTION
If Required
BI = Bi-Directional

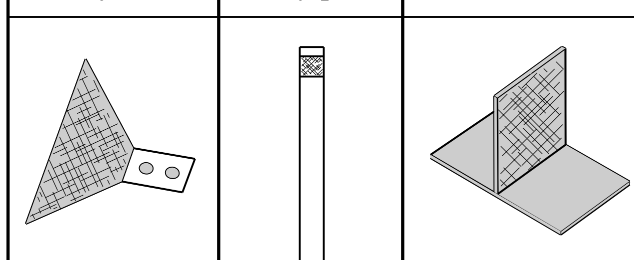
OBJECT MARKERS

	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_{FL} or C_{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_{FL} or C_{FL} Sheeting			Red -Type B_{FL} or C_{FL} Sheeting
POST TYPE	TWT	WC	WC	WFLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

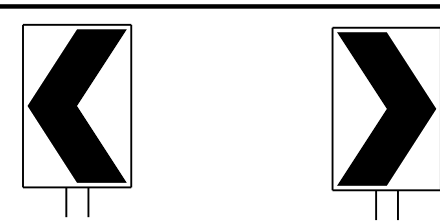
DEPARTMENTAL MATERIAL SPECIFICATIONS

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

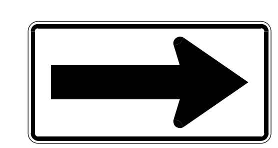
BARRIER REFLECTORS (BRF)

	GF1	GF2	CTB
DEVICE			
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.		
SHEETING	Yellow, White, Red		
NOTE	1. Reflective sheeting shall have a minimum dimension of 3 inches and minimum surface area of 9 square inches.		

CHEVRONS

DEVICE	 W1-8			
SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	

ONE DIRECTION LARGE ARROW

DEVICE	 W1-6	
SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

NOTE

1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies).
2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6).

NOTE:

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

Texas Department of Transportation — Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

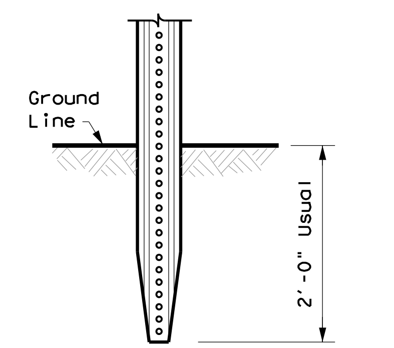
FILE: dom1-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT August 2004	CONT 0053	SECT 01	JOB 136	HIGHWAY US 84, ETC.
REVISIONS 10-09 3-15 4-10 7-20	DIST LBB		COUNTY LUBBOCK, ETC.	SHEET NO. 170

20A

POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

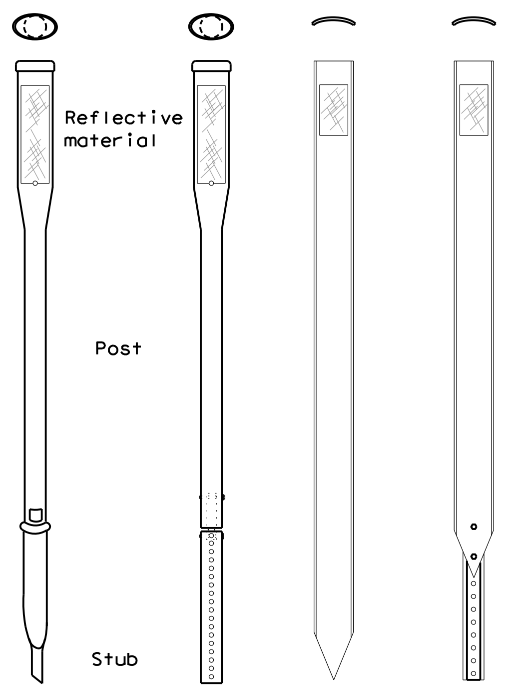


NOTES

1. Embedded Wing Channel (WC) post option may be used for Type 2 Object Markers and Delineators only.
2. 1.12 lbs/ft steel per ASTM A 1011 SS Gr. 50, or ASTM A499.

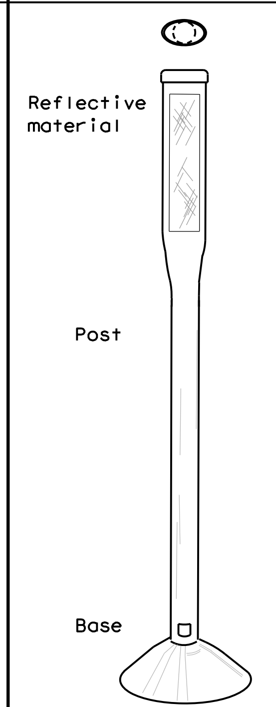
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



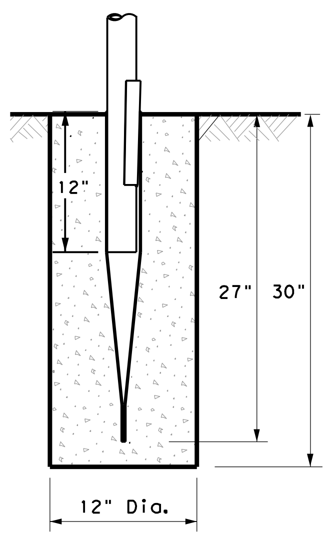
SURFACE MOUNT

NOTES

1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices.
2. Install per manufacturer's recommendations.
3. Post length may vary to meet field conditions.
4. When using yellow delineators with flexible posts to separate opposing direction of travel, such as centerline or median use, the flexible posts shall be yellow.

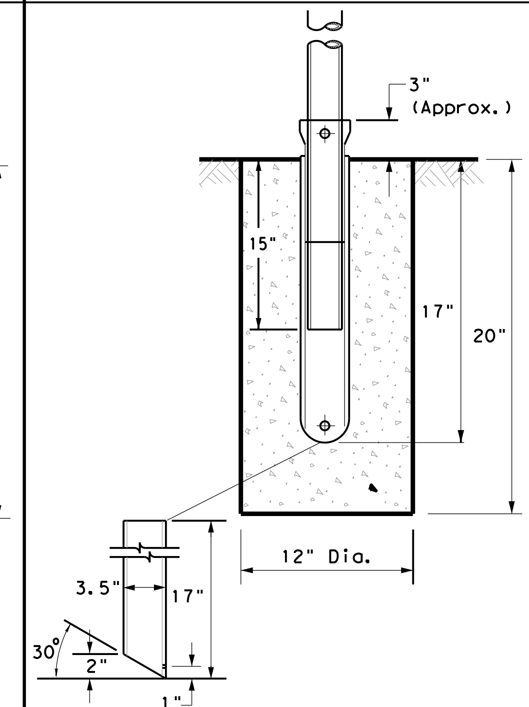
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

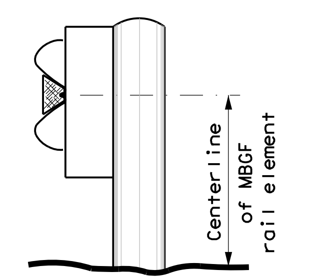
NOTE

1. Install per manufacturer's recommendations.

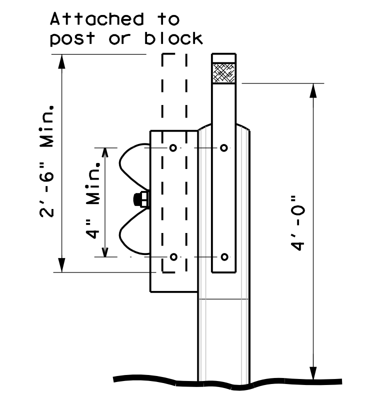
TYPE OF BARRIER MOUNTS

GUARD FENCE ATTACHMENT

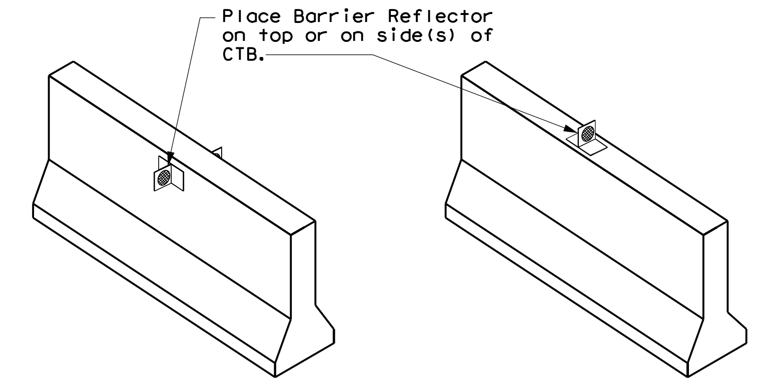
GF1



GF2



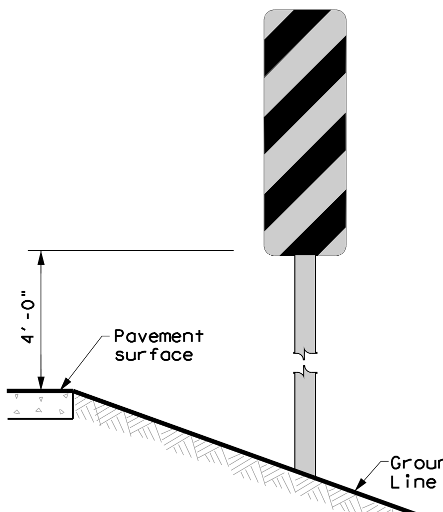
CONCRETE TRAFFIC BARRIER (CTB)



GENERAL NOTES

1. Place delineators on a section of roadway at a consistent distance from the edge of pavement.
2. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction.
3. When Type 2 object markers and delineators are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker or delineator as close to the desired height as possible.
4. Install all delineators, object markers and barrier reflectors in accordance with the manufacturer's recommendation.
5. Barrier reflectors should be installed a minimum of 18 inches above the edge of the pavement surface.
6. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane.

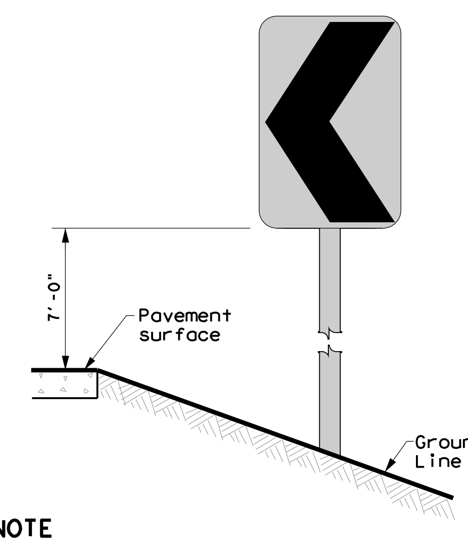
TYPES 1, 3, AND 4 OBJECT MARKERS AND CHEVRONS



NOTE

Mounting at 4 feet to the bottom of the chevron is permitted for chevrons that will not exceed a height of 6'-6" to the top of the chevron (sizes 24" x 30" and smaller)

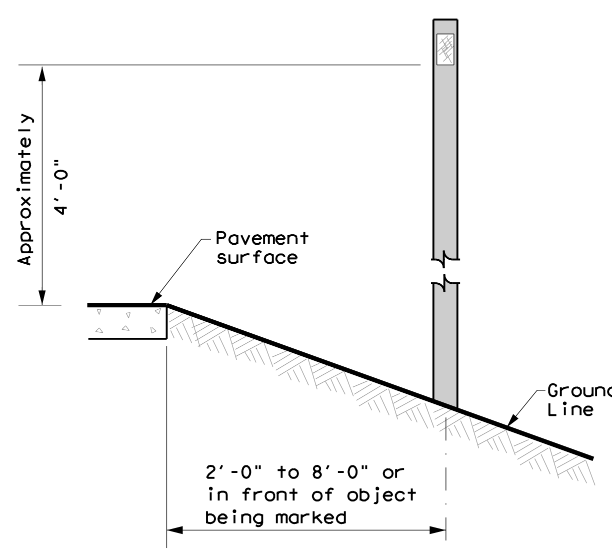
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



NOTE

Chevrons 30" x 36" and larger shall be mounted at a height of 7' to the bottom of the chevron. Chevron sign and ONE DIRECTION LARGE ARROW sign (W1-9T) shall be installed per SMD standard sheets and paid under item 644.

DELINEATORS AND TYPE 2 OBJECT MARKERS



See general notes 1, 2 and 3.

Texas Department of Transportation — Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

FILE: dom2-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
10-09 3-15	DIST		COUNTY	SHEET NO.
4-10 7-20	LBB		LUBBOCK, ETC.	171

20B

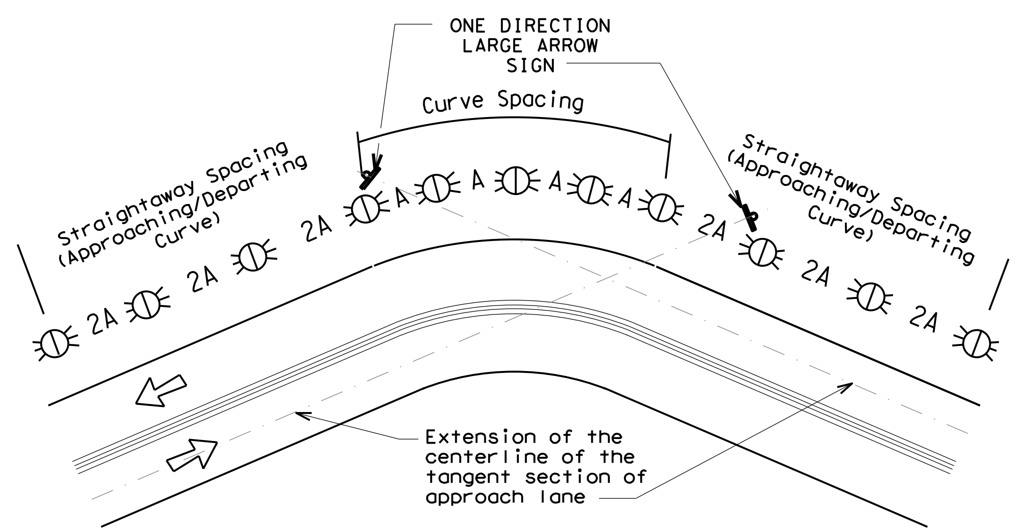
DATE: 1/30/2024 1:28:30 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/...

DATE: 1/30/2024 1:28:45 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/...

MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

Amount by which Advisory Speed is less than Posted Speed	Curve Advisory Speed	
	Turn (30 MPH or less)	Curve (35 MPH or more)
5 MPH & 10 MPH	• RPMs	• RPMs
15 MPH & 20 MPH	• RPMs and One Direction Large Arrow sign	• RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons.
25 MPH & more	• RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons	• RPMs and Chevrons

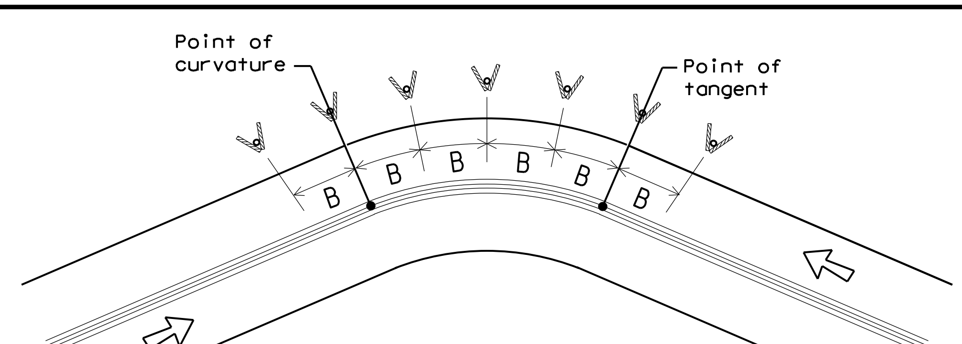
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



NOTE

ONE DIRECTION LARGE ARROW (W1-6) sign should be located at approximately and perpendicular to the extension of the centerline of the tangent section of approach lane.

SUGGESTED SPACING FOR CHEVRONS ON HORIZONTAL CURVES



NOTE

At least one chevron pair is installed beyond the point of tangent in tangent section.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS KNOWN

Degree of Curve	Radius of Curve (FEET)	Spacing in Curve (FEET)	Spacing in Straightaway (FEET)	Chevron Spacing in Curve (FEET)
		A	2A	B
1	5730	225	450	—
2	2865	160	320	—
3	1910	130	260	200
4	1433	110	220	160
5	1146	100	200	160
6	955	90	180	160
7	819	85	170	160
8	716	75	150	160
9	637	75	150	120
10	573	70	140	120
11	521	65	130	120
12	478	60	120	120
13	441	60	120	120
14	409	55	110	80
15	382	55	110	80
16	358	55	110	80
19	302	50	100	80
23	249	40	80	80
29	198	35	70	40
38	151	30	60	40
57	101	20	40	40

Curve delineator approach and departure spacing should include 3 delineators spaced at 2A. This spacing should be used during design preparation or when the degree of curve is known.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS NOT KNOWN

Advisory Speed (MPH)	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
	A	2xA	B
65	130	260	200
60	110	220	160
55	100	200	160
50	85	170	160
45	75	150	120
40	70	140	120
35	60	120	120
30	55	110	80
25	50	100	80
20	40	80	80
15	35	70	40

If the degree of curve is not known, delineator spacing may be determined based on the Advisory Speed of the curve. Use the delineator curve spacing for each Advisory Speed (MPH).

DELINEATOR AND OBJECT MARKER APPLICATION AND SPACING

CONDITION	REQUIRED TREATMENT	MINIMUM SPACING
Frwy./Exp. Tangent	RPMs	See PM-series and FPM-series standard sheets
Frwy./Exp. Curve	Single delineators on right side	See delineator spacing table
Frwy/Exp. Ramp	Single delineators on at least one side of ramp (should be on outside of curves) (see Detail 3 on D&OM(4))	100 feet on ramp tangents Use delineator spacing table for ramp curves ("straightway spacing" does not apply to ramp curves)
Acceleration/Deceleration Lane	Double delineators (see Detail 3 on D&OM(4))	100 feet (See Detail 3 on D & OM (4))
Truck Escape Ramp	Single red delineators on both sides	50 feet
Bridge Rail (steel or concrete) and Metal Beam Guard Fence	Bi-Directional Delineators when undivided with one lane each direction Single Delineators when multiple lanes each direction	Equal spacing (100'max) but not less than 3 delineators
Concrete Traffic Barrier (CTB) or Steel Traffic Barrier	Barrier reflectors matching the color of the edge line	Equal spacing 100' max
Cable Barrier	Reflectors matching the color of the edge line	Every 5th cable barrier post (up to 100'max)
Guard Rail Terminus/Impact Head	Divided highway - Object marker on approach end Undivided 2-lane highways - Object marker on approach and departure end	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5) and D & OM (6)
Bridges with no Approach Rail	Type 3 Object Marker (OM-3) at end of rail and 3 single delineators approaching rail	See D & OM(5)
Reduced Width Approaches to Bridge Rail	Type 2 and Type 3 Object Markers (OM-3) and 3 single delineators approaching bridge	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5)
Culverts without MBGF	Type 2 Object Markers	See Detail 2 on D & OM(4)
Crossovers	Double yellow delineators and RPMs	See Detail 1 on D & OM (4)
Pavement Narrowing (lane merge) on Freeways/Expressway	Single delineators adjacent to affected lane for full length of transition	100 feet

NOTES

1. Unless indicated otherwise, the delineator or barrier reflector color shall conform to the color of the pavement edge line on the side of the road where the delineators or barrier reflectors are placed.
2. Barrier reflectors may be used to replace required delineators.
3. Single red delineators may be mounted on the back side of delineator posts for wrong way driver applications

LEGEND

Symbol	Meaning
(symbol)	Bi-directional Delineator
(symbol)	Delineator
(symbol)	Sign

Texas Department of Transportation

Traffic Safety Division Standard

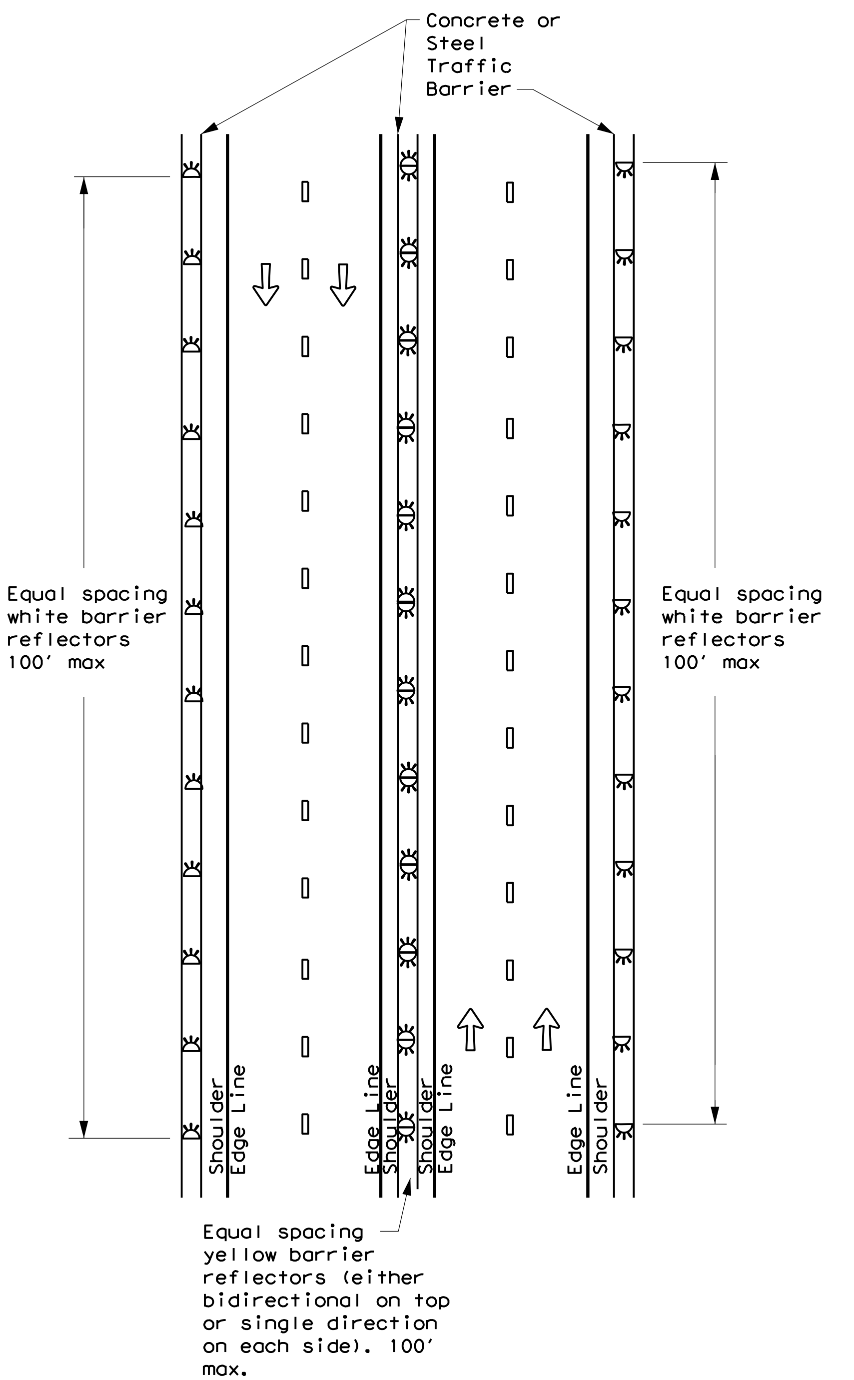
DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(3)-20

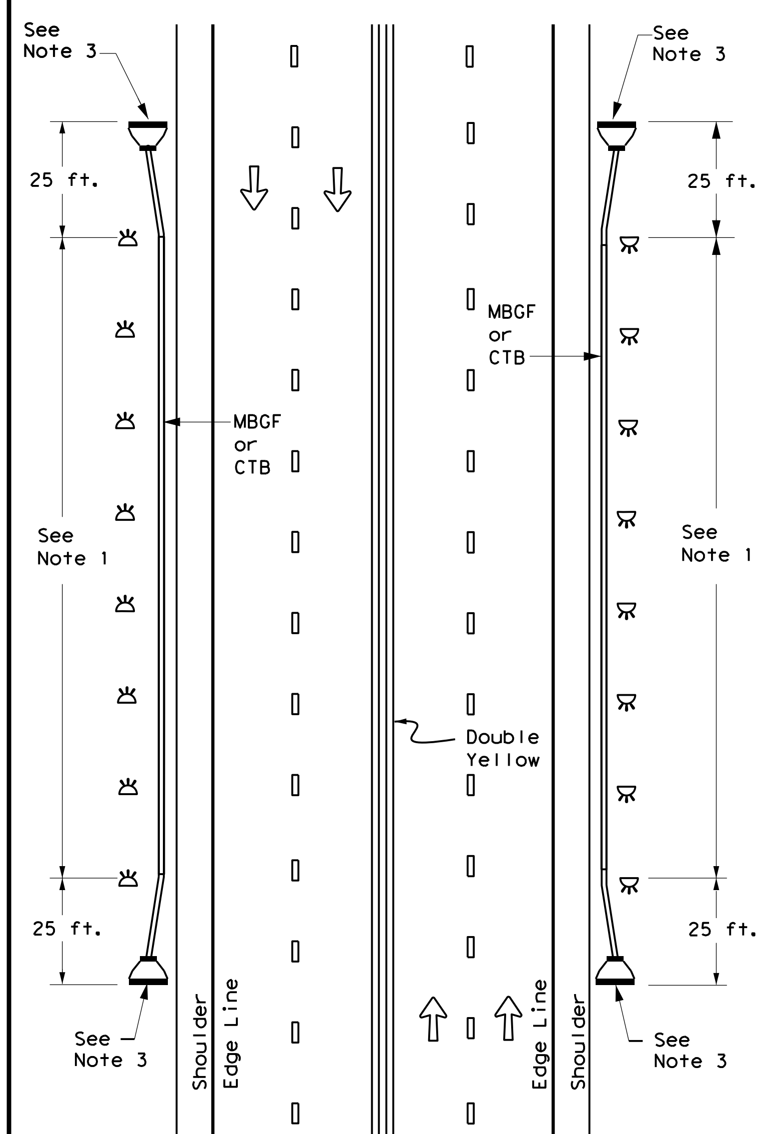
FILE: dom3-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
3-15 8-15 8-15 7-20	DIST		COUNTY	SHEET NO.
	LBB		LUBBOCK, ETC.	172

20C

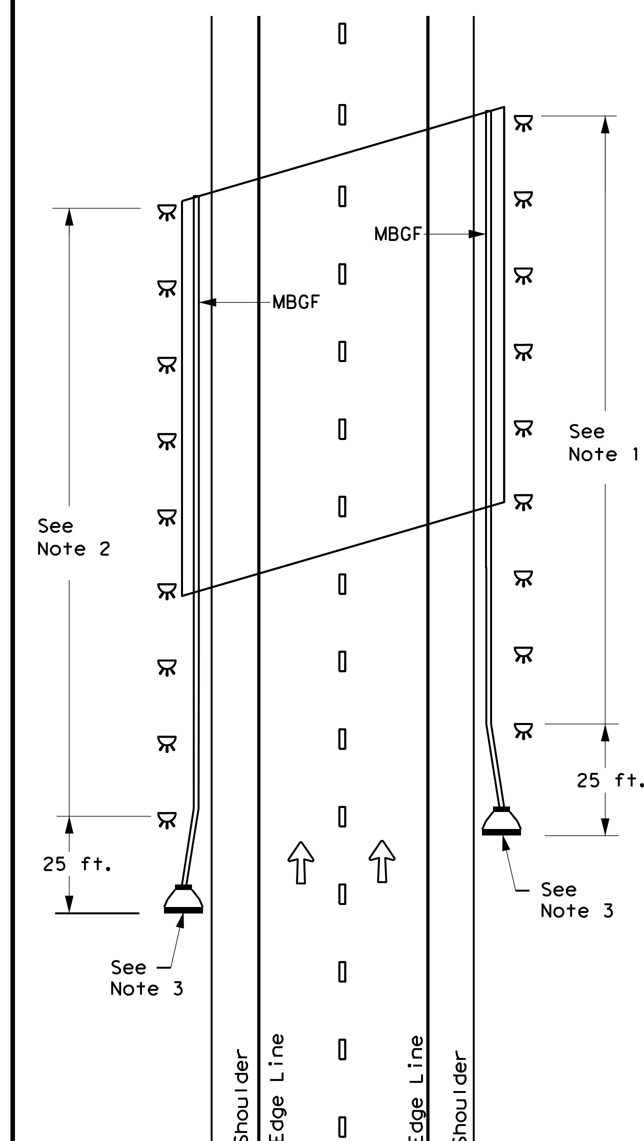
CONTINUOUS CONCRETE OR STEEL BARRIER



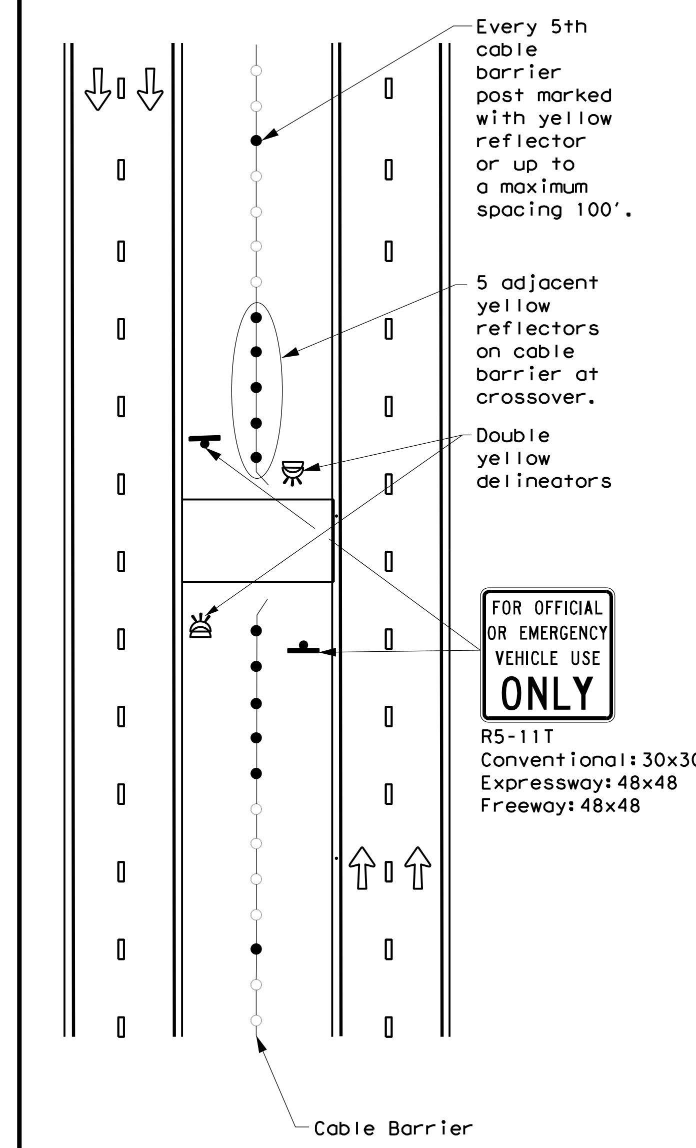
MULTI-LANE UNDIVIDED, TWO-WAY ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



DIVIDED ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



EMERGENCY CROSSOVER



NOTES

1. Equal spacing (100′ max), but not less than 3 single directional white barrier reflectors or delineators. On Continuos Barrier, equal spacing (100′ max.)

2. Equal spacing (100′ max), but not less than 3 single directional yellow barrier reflectors or delineators.

3. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

LEGEND

Symbol	Description
	Bidirectional Delineator
	Delineator
	OM-3
	OM-2
	Terminal End
	Traffic Flow

Texas Department of Transportation — Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(6)-20

FILE: dom6-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
7-20	DIST		COUNTY	SHEET NO.
	LBB		LUBBOCK, ETC.	173

20F

DATE: 1/30/2024 1:28:57 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Pro…/dom6-20.dgn

I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

☑ This project is adjacent or parallel work, not within RR ROW:

DOT No.: SEE ATTACHMENT

Crossing Type: SEE ATTACHMENT

RR Company Operating Track at Crossing: SEE ATTACHMENT

RR Company Owning Track at Crossing: SEE ATTACHMENT

RR MP: SEE ATTACHMENT

RR Subdivision: SEE ATTACHMENT

City: SEE ATTACHMENT

County: SEE ATTACHMENT

CSJ at this Crossing: SEE ATTACHMENT

Scope of Work, including any TCP, to be performed by State Contractor:

Construction of safety improvements consisting of Median Cable Barrier placement and removal of various cross-overs.
All of the work performed will be in the median parallel to the tracks and outside of BNSF Right of Way.

Scope of Work to be performed by Railroad Company:

NONE

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 0

On this project, night or weekend flagging is:

☐ Expected

☑ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices. Flagging Agreement with Railroad will be needed

☐ Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

☐ **UPRR** UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
UP.request@nrssinc.net
Call Center 877-984-677

☑ **BNSF** BNSFinfo@railprosfs.com
Call Center 877-315-0513, Select #1 for flagging

☐ **KCS** KCS.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
Bottom Line On-Track Safety Services
bottomline076@aol.com, 903-767-7630

☐ OTHERS:

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☑ Not Required

☐ Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required. Railroad Point of Contact: _____

☑ Not Required

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000

Railroad Protective Liability Limits	
☑ Not Required	
☐ Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	$2,000,000 / $6,000,000
☐ Bridge Structure Projects. Includes new construction or replacement of overpass/ underpass structures	$5,000,000 / $10,000,000
☐ Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

☑ Not Required

☐ Required: UPRR Maintenance Consent Letter. TxDOT to assist

☐ Required: TxDOT to assist in obtaining the UPRR CROE

☐ Required: Contractor to obtain

- ☐ BNSF: _____
  https://bnsf.railpermitting.com
- ☐ KCS
  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- ☐ Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html

Approved CROE templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed CROE between the Contractor and the Railroad if required on project.

VI. RAILROAD COORDINATION MEETING

A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

VII. RAILROAD SAFETY ORIENTATION

A. Complete the Railroad's course "Orientation for Contractor's Safety," and maintain registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: BNSF RAILROAD EMERGENCY LINE

Railroad Emergency Line at: 800-832-5452

Location: DOT 015027D

RR Milepost: 0718.953

Subdivision: SLATON

RRD Review Only

Initials: _____

Date: 01/03/2024

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS
BNSF CROSSINGS
SHEET 1 OF 2

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY
REVISIONS		0053	01	136		US 87, ETC.
3/2023		DIST	COUNTY			SHEET NO.
		LBB	LBB, ETC.			174

DOT#	CROSSING TYPE	TRACK OWNER	TRACK OPERATOR	RR MP	SUBDIVISION	CITY	COUNTY	CSJ	TRAINS PER DAY	SWITCHING MOVEMENTS	%OF WORK
015027D	PUBLIC	BNSF	BNSF	718.953	SLATON	POST	GARZA	0053-05-053	12	0	1
015028K	PUBLIC	BNSF	BNSF	722.561	SLATON	POST	GARZA	0053-05-053	12	0	1
015030L	PRIVATE	BNSF	BNSF	728.36	SLATON	POST	GARZA	0053-05-053	15	0	1
015031T	PUBLIC	BNSF	BNSF	728.93	SLATON	POST	GARZA	0053-05-053	10	0	1
015032A	PUBLIC	BNSF	BNSF	729.55	SLATON	POST	GARZA	0053-05-053	12	0	1
015033G	PRIVATE	BNSF	BNSF	730.28	SLATON	POST	GARZA	0053-05-053	14	0	1
015034N	PRIVATE	BNSF	BNSF	731.31	SLATON	POST	GARZA	0053-06-032	12	0	1
015037J	PRIVATE	BNSF	BNSF	736.8	SLATON	JUSTICEBURG	GARZA	0053-06-032	12	0	1

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS
BNSF Crossings

ATTACHMENT SHEET

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		175

DATE: 1/30/2024 4:30:18 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/8. Traffic/Railroad/US0084_TRF_RR_SOW.dgn

PART 1 - GENERAL

1.01 DESCRIPTION

This project includes construction work within the right of way and/or properties of the Railroad and adjacent to its tracks, wire lines and other facilities. These sheets describe the minimum special requirements for coordination with the Railroad when working upon, over or under Railroad Right of Way or when impacting current or future Railroad operations. Coordinate with the Railroad while performing the work outlined herein, and afford the same cooperation with the Railroad as with TxDOT. Complete all submittals and work in accordance with TxDOT Standard Specifications, Railroad Guidelines and AREMA recommendations as modified by these minimum special requirements or as directed in writing by the Railroad Designated Representative.

For purposes of this project, the Railroad Designated Representative is the person or persons designated by the Railroad Manager of Industry and Public Projects to handle specific tasks related to the project.

1.02 REQUEST FOR INFORMATION / CLARIFICATION

Submit Requests for Information ("RFI") involving work within any Railroad Right of Way to the TxDOT Engineer. The TxDOT Engineer will submit the RFI to the Railroad Designated Representative for review and approval for RFI's corresponding to work within Railroad Right of Way. Allow six (6) weeks total time for review and approval, which includes four (4) weeks for review and approval by the Railroad.

1.03 PLANS / SPECIFICATIONS

TxDOT has received written Railroad approval of the plans and specifications for this project. Any revisions or changes in the plans after award of the Contract must have the approval of TxDOT and the Railroad.

PART 2 - UTILITIES AND FIBER OPTIC

Construct all utility installations in accordance with current AREMA recommendations, Railroad, TxDOT and owning utility specifications and requirements. Railroad general guidelines can be found on the Railroad website or by contacting the Railroad Designated Representative.

PART 3 - CONSTRUCTION

3.01 GENERAL

A. Perform all work in compliance with all applicable Railroad, Federal Railroad Administration (FRA), and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of railroad train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.

B. Construction activities within 15 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 15 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.

C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor machinery and materials at least 50 feet from the Railroad's nearest track.

D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with Railroad approval.

E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.

F. Railroad requirements do not allow work within 50 feet of track centers when a train passes the work site and all personnel must clear the area within 50 feet of the track centerline and secure all equipment. Additional allowances may be pursued as outlined in 3.02 and 3.03.

G. All permanent clearances shall be verified before project closing.

3.02 RAILROAD OPERATIONS

A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.

B. All railroad tracks within and adjacent to the contract site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.

C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:

1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a railroad flag person will be required. At the direction of the railroad flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.

2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. Railroad flag persons will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

A. Do not perform any work within Railroad Right of Way without a valid executed Right of Entry Agreement if required on this project.

B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right of Way and observe the Railroad's rules and regulations with respect thereto.

C. Perform all work upon Railroad Right of Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.15 for railroad flagging requirements.

D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
1. Exactly what the work entails.
2. The days and hours that work will be performed.
3. The exact location of work, and proximity to the tracks.
4. The type of window requested and the amount of time requested.
5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.

E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

3.04 INSURANCE

Do not begin work upon or over Railroad Right of Way until furnishing the Railroad with the insurance policies, binders, certificates and endorsements required by the "Contractor's Right of Entry Agreement", and until the Railroad Designated Representative has advised TxDOT that such insurance is in accordance with the Agreement.

3.05 RAILROAD SAFETY ORIENTATION

A. Complete the railroad course "Orientation for Contractor's Safety", and maintain current registration prior to working on railroad property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

"UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other railroads. Refer to Railroad specific contractor right of entry for training information."

B. Know and follow the "Contractor's Right of Entry Agreement" EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

3.06 COOPERATION

The Railroad will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of Railroad Right of Way in performing the work.

3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

Abide by the following minimum temporary clearances during the course of construction:
A. 15' - 0" (BNSF)(UPRR)and 14'-0" (KCS) horizontal from centerline of track
B. 22' (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

For construction clearance less than listed above, obtain local Railroad Operating Unit review and approval.

3.08 APPROVAL OF REDUCED CLEARANCES

A. Maintain minimum track clearances during construction as specified in Section 3.07.

B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.

C. Do not commence work involving an approved infringement without receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS March 2020	0053	01	136	US 84, ETC.
	DIST	COUNTY		SHEET NO.
	LBB	LUBBOCK, ETC.		176

3.09 MAINTENANCE OF RAILROAD FACILITIES

A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.

B. Perform all such maintenance and repair of damages due to the Contractors's operations at Contractor's expense.

C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the project site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.10 SITE INSPECTIONS BY RAILROAD's DESIGNATED REPRESENTATIVE

A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
   1. Pre-construction meetings.
   2. Pile driving/drilling of caissons or drilled shafts.
   3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
   4. Erection of precast concrete or steel bridge superstructure.
   5. Placement of waterproofing (prior to placing ballast on bridge deck).
   6. Completion of the bridge structure.

B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.

C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.11 RAILROAD REPRESENTATIVES

Railroad representatives, conductors, flag person or watch person will be provided by the Railroad at expense of TxDOT to protect Railroad facilities, property and movements of its trains or engines. In general, the Railroad will furnish such personnel or other protective services as follows:

A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other railroad facilities may be subject to settlement or movement.

C. During any clearing, grubbing, excavation or grading in proximity to railroad facilities, which, in the opinion of the Railroad Designated Representative, may endanger railroad facilities or operations.

D. During any Contractor's operations when, in the opinion of the Railroad Designated Representative, railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.

E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.12 COMMUNICATIONS AND SIGNAL LINES

If required, the Railroad will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by the Railroad's forces in connection with its operation at expense of TxDOT. This work by the Railroad will be done by its own forces and it is not a part of the Work under this Contract.

3.13 TRAFFIC CONTROL

Coordinate any operations that control traffic across or around railroad facilities with the Railroad Designated Representative.

3.14 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".

B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

   UPRR 1-800-336-9193
   7:00 AM to 9:00 PM CST Monday-Friday except holidays,
   staffed 24 hrs/day for emergencies
   48 hrs notice required

   BNSF 1-800-533-2891
   24 hour number
   5 working days notice required

   KCS 1-800-344-8377
   Texas One Call, a 24 hour number
   48 hrs notice required, excluding weekends and holidays

   If a telecommunications system is buried anywhere on or near railroad property, coordinate with TxDOT, the Railroad and the Telecommunication Company(ies) to arrange for relocation or protective measures prior to beginning work on or near railroad property. Refer to the project General Notes for additional information.

C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of $\frac{1}{4}$ inch vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

3.15 RAILROAD FLAGGING

Per the Right of Entry Agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor's work and at least 30 working days in advance of any Contractor's work in which any person or equipment will be within 25 feet of nearest rail or as specified in the Contractor Right of Entry (CROE).

3.16 CLEANING OF RIGHT-OF-WAY

When work is complete, remove all tools, implements, and other materials brought into Railroad Right of Way and leave the right of Way in a clean and presentable condition to the satisfaction of TxDOT and the Railroad.

Texas Department of Transportation — Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS March 2020	0053	01	136	US 84, ETC.
	DIST	COUNTY		SHEET NO.
	LBB	LUBBOCK, ETC.		177

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with the TPDES Construction General Permit TXR150000 (CGP). The Texas Department of Transportation (TxDOT) ensures that project specifications include adequate best management practices (BMPs) for this project.

For all projects with soil disturbing activity and for projects that have Environmental, Permits, Issues, and Commitments (EPICs) dependent on stormwater controls and water quality measures TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office, Area Office, or electronically.

This SWP3 is consistent with requirements specified in applicable stormwater plans and the projects environmental permits, issues, and commitments (EPICs). A copy of the CGP is included in Attachment 2.12 of the SWP3 binder.

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
0053-01-136, 0053-03-022, 0053-04-045, 0053-05-053, 0053-06-032

1.2 PROJECT LIMITS:
From: SEE ATTACHMENT

To: SEE ATTACHMENT

1.3 PROJECT COORDINATES:
BEGIN: (Lat) SEE ATTACHMENT ,(Long) SEE ATTACHMENT

END: (Lat) SEE ATTACHMENT ,(Long) SEE ATTACHMENT

1.4 TOTAL PROJECT AREA (Acres): 1552

1.5 TOTAL AREA TO BE DISTURBED (Acres): 1552

1.6 NATURE OF CONSTRUCTION ACTIVITY:
REMOVING CROSSOVER(S), REPLACING EXISTING CABLE BARRIER, INSTALLING CABLE BARRIER, SIGNING & STRIPING

1.7 MAJOR SOIL TYPES:

Soil Type	Description
Vernon complex	100% Vernon soils, well drained, very high runoff class, moderate erosion hazard
Miles fine sandy loam, 1-3% slopes	85% miles soils, well drained, low runoff class, slight erosion hazard
Olton clay loam, 1-3% slopes	100% olton soils, well drained, medium runoff class, slight erosion hazard
Acuff loam, 0-1% slopes	85% acuff soils, well drained, negligible runoff class, slight erosion hazard
Olton clay loam, 0-1% slopes	85% olton soils, well drained, low runoff class, slight erosion hazard

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):
PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

☐ PSLs determined during preconstruction meeting
☒ PSLs determined during construction
☐ No PSLs planned for construction

Type	Sheet #s

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:
(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.5.)

☒ Mobilization
☒ Install sediment and erosion controls
☒ Blade existing topsoil into windrows, prep ROW, clear and grub
☒ Remove existing pavement
☒ Grading operations, excavation, and embankment
☐ Excavate and prepare subgrade for proposed pavement widening
☐ Remove existing culverts, safety end treatments (SETs)
☒ Remove existing metal beam guard fence (MBGF), bridge rail
☒ Install proposed pavement per plans
☒ Install culverts, culvert extensions, SETs
☒ Install mow strip, MBGF, bridge rail
☒ Place flex base
☒ Rework slopes, grade ditches
☒ Blade windrowed material back across slopes
☒ Revegetation of unpaved areas
☒ Achieve site stabilization and remove sediment and erosion control measures
☒ Other: REMOVING CROSSOVER(S), REPLACING EXISTING CABLE BARRIER, INSTALLING CABLE BARRIER
☒ Other: SIGNING & STRIPING
☐ Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

☒ Sediment laden stormwater from stormwater conveyance over disturbed area
☒ Fuels, oils, and lubricants from construction vehicles, equipment, and storage
☒ Solvents, paints, adhesives, etc. from various construction activities
☒ Transported soils from offsite vehicle tracking
☒ Construction debris and waste from various construction activities
☐ Contaminated water from excavation or dewatering pump-out water
☒ Sanitary waste from onsite restroom facilities
☒ Trash from various construction activities/receptacles
☒ Long-term stockpiles of material and waste
☒ Discharges from concrete washout activities, runoff from concrete cutting activities, and other concrete related activities.
☐ Other: _____
☐ Other: _____
☐ Other: _____

1.11 RECEIVING WATERS:
Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody
South Dokegood Creek, Falls Creek, Stink Creek, Sand Creek, Red Branch, Lake Alan Henry South Fork Double Mountain Fork Brazos River	Double Mountain Fork Brazos River (1241); impaired for bacteria.
NO TMDLs or I-PLANS were identified.	

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: TxDOT

☒ Development of plans and specifications
☒ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
☒ Post Construction Site Notice
☐ Submit NOI/CSN to local MS4
☒ Perform SWP3 inspections
☒ Maintain SWP3 records and update to reflect daily operations
☒ Complete and submit Notice of Termination to TCEQ
☒ Maintain SWP3 records for 3 years
☐ Other: _____
☐ Other: _____

NOTE: Environmental Documentation shall be uploaded to Site Manager and Projectwise within 7 calendar days per CGP Part III.E.

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

☒ Day To Day Operational Control
☒ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
☒ Post Construction Site Notice
☐ Submit NOI/CSN to local MS4
☒ Maintain schedule of major construction activities
☒ Install, maintain and modify BMPs
☒ Complete and submit Notice of Termination to TCEQ
☒ Maintain SWP3 records for 3 years
☐ Other: _____
☐ Other: _____

NOTE: Environmental Documentation must be readily available

1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:

MS4 Entity
NONE

LBB DISTRICT ADVISEMENT:Within the project area there area identified Waters of the United States (W.O.T.U.S). Please review the EPIC for any applicable permits, best management practices, or environmental commitments that may apply. Listed Below are the identified WOTUS(s) in the project limits:

Sand Creek, Two Bush Knob, Cooper Creek, Salt Branch, Double Mountain Fork Brazos River, Justiceburg Creek, Justiceburg Lake, Red Branch, Rocky Creek

LBB DISTRICT NOTE:
Concrete truck wash-out is allowed if the following are provided:
a) wash-out of concrete trucks to surface waters in the state, including storm sewer drains and inlets is prohibited.
b) washout shall be to a structural control
c) the direct discharge of wash-out water is prohibited at all times
d) the discharge shall not contribute to groundwater contamination
e) wash-out areas must be shown on the site map;
f) wash-out pits shall be bermed and lined with plastic

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3) OVER 1 ACRE

 (US 84) Sheet 1 of 6

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			178
STATE	STATE DIST.	COUNTY	
TEXAS	LBB	LUBBOCK, ETC.	
CONT.	SECT.	JOB	HIGHWAY NO.
0053	01	136	US 84, ETC.

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- ☐ ☐ Protection of Existing Vegetation
- ☐ ☐ Vegetated Buffer Zones
- ☒ ☐ Soil Retention Blankets
- ☐ ☐ Geotextiles
- ☐ ☐ Mulching/ Hydromulching
- ☐ ☐ Soil Surface Treatments
- ☐ ☐ Temporary Seeding
- ☐ ☐ Permanent Planting, Sodding or Seeding
- ☒ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Vertical Tracking
- ☐ ☐ Interceptor Swale
- ☐ ☐ Riprap
- ☐ ☐ Diversion Dike
- ☐ ☐ Temporary Pipe Slope Drain
- ☐ ☐ Embankment for Erosion Control
- ☐ ☐ Paved Flumes
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- ☒ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Dewatering Controls
- ☐ ☐ Inlet Protection
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☒ ☐ Sandbag Berms
- ☒ ☐ Sediment Control Fence
- ☐ ☐ Stabilized Construction Exit
- ☐ ☐ Floating Turbidity Barrier
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Vegetated Filter Strips
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

Sediment control BMPs requiring design capacity calculations (See SWP3 Attachment 1.3.):

T / P

- ☐ ☐ Sediment Trap
  - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
  - ☐ 3,600 cubic feet of storage per acre drained
- ☐ ☐ Sedimentation Basin
  - ☐ Not required (<10 acres disturbed)
  - ☐ Required (>10 acres) and implemented.
    - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
    - ☐ 3,600 cubic feet of storage per acre drained
  - ☒ Required (>10 acres), but not feasible due to:
    - ☒ Available area/Site geometry
    - ☐ Site slope/Drainage patterns
    - ☐ Site soils/Geotechnical factors
    - ☒ Public safety
    - ☒ Other: _____

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- ☒ Excess dirt/mud on road removed daily
- ☐ Haul roads dampened for dust control
- ☐ Loaded haul trucks to be covered with tarpaulin
- ☒ Stabilized construction exit
- ☐ Daily street sweeping
- ☐ Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- ☒ Chemical Management
- ☒ Concrete and Materials Waste Management
- ☒ Debris and Trash Management
- ☒ Dust Control
- ☒ Sanitary Facilities
- ☒ Other: LIDDED DUMPSTER (Part III.G.4.c in CGP)

Litter and Construction Debris:
Storage of construction and waste materials on-site shall be temporary. The project contractor shall establish a schedule for the regular removal of litter and construction debris: the schedule shall be approved by the project engineer; and, once approved, implemented by the contractor. As needed. The project engineer shall direct the contractor to establish good housekeeping measures consistent with the TCEQ's Construction General Permit.

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- ☒ Fire hydrant flushings
- ☒ Irrigation drainage
- ☒ Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- ☒ Potable water sources
- ☒ Springs
- ☒ Uncontaminated groundwater
- ☒ Water used to wash vehicles or control dust
- ☒ Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

NOTE: Discharges from dewatering activities are prohibited unless managed by appropriate controls per the CGP. Part III.G.3

2.8 DEWATERING:

Dewatering discharges of accumulated stormwater, groundwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

2.9 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

When dewatering activities are present, a daily inspection will be conducted once per day during those activities and documented in accordance with CGP and TxDOT requirements.

2.10 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

Inspection of Controls:
Lubbock District: an Informal Inspection of controls shall occur every work day; a formal inspection of controls accompanied by an inspection report using Form 2118 shall occur every seven calendar days. Inspectors must inspect disturbed areas that have not been finally stabilized, areas that are used for storage of materials and that are exposed to rain. discharge locations and structural controls for evidence of, or the potential for. pollutants entering the drainage system. The SWP3 must be modified based on the results of Inspections to better control pollutants In runoff. Revisions to the SWP3 must be completed within seven calendar days following inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described In the SWP3 and wherever possible those changes implemented before the next storm event.

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1/26/2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3) OVER 1 ACRE

(US 84) Sheet 2 of 6

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			179
STATE	STATE DIST.	COUNTY	
TEXAS	LBB	LUBBOCK, ETC.	
CONT.	SECT.	JOB	HIGHWAY NO.
0053	01	136	US 84, ETC.

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with the TPDES Construction General Permit TXR150000 (CGP). The Texas Department of Transportation (TxDOT) ensures that project specifications include adequate best management practices (BMPs) for this project.

For all projects with soil disturbing activity and for projects that have Environmental, Permits, Issues, and Commitments (EPICs) dependent on stormwater controls and water quality measures TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office, Area Office, or electronically.

This SWP3 is consistent with requirements specified in applicable stormwater plans and the projects environmental permits, issues, and commitments (EPICs). A copy of the CGP is included in Attachment 2.12 of the SWP3 binder.

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
0068-02-049, 0068-03-034

1.2 PROJECT LIMITS:
From: SEE ATTACHMENT

To: SEE ATTACHMENT

1.3 PROJECT COORDINATES:
BEGIN: (Lat) SEE ATTACHMENT ,(Long) SEE ATTACHMENT

END: (Lat) SEE ATTACHMENT ,(Long) SEE ATTACHMENT

1.4 TOTAL PROJECT AREA (Acres): 1552

1.5 TOTAL AREA TO BE DISTURBED (Acres): 1552

1.6 NATURE OF CONSTRUCTION ACTIVITY:
REMOVING CROSSOVER(S), REPLACING EXISTING CABLE BARRIER, INSTALLING CABLE BARRIER, SIGNING & STRIPING

1.7 MAJOR SOIL TYPES:

Soil Type	Description
Portales loam, 0-1% slopes	85% portales soils, well drained, negligible runoff class, slight erosion hazard
Estacado and Pep loams, 0-1% slopes	45% estacado soils, well drained, negligible runoff class, slight erosion hazard
Amarillo fine sandy loam, 0-1% slopes	90% Amarillo soils, well drained, negligible runoff class, slight erosion hazard
Acuff loam, 0-1% slopes	85% acuff soils, well drained, negligible runoff class, slight erosion hazard

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):
PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

☐ PSLs determined during preconstruction meeting
☒ PSLs determined during construction
☐ No PSLs planned for construction

Type	Sheet #s

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:
(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.5.)

☒ Mobilization
☒ Install sediment and erosion controls
☒ Blade existing topsoil into windrows, prep ROW, clear and grub
☒ Remove existing pavement
☒ Grading operations, excavation, and embankment
☐ Excavate and prepare subgrade for proposed pavement widening
☐ Remove existing culverts, safety end treatments (SETs)
☒ Remove existing metal beam guard fence (MBGF), bridge rail
☐ Install proposed pavement per plans
☒ Install culverts, culvert extensions, SETs
☒ Install mow strip, MBGF, bridge rail
☐ Place flex base
☒ Rework slopes, grade ditches
☒ Blade windrowed material back across slopes
☒ Revegetation of unpaved areas
☒ Achieve site stabilization and remove sediment and erosion control measures
☒ Other: REMOVING CROSSOVER(S), REPLACING EXISTING CABLE BARRIER, INSTALLING CABLE BARRIER SIGNING & STRIPING
☒ Other: SIGNING & STRIPING
☐ Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

☒ Sediment laden stormwater from stormwater conveyance over disturbed area
☒ Fuels, oils, and lubricants from construction vehicles, equipment, and storage
☒ Solvents, paints, adhesives, etc. from various construction activities
☒ Transported soils from offsite vehicle tracking
☒ Construction debris and waste from various construction activities
☐ Contaminated water from excavation or dewatering pump-out water
☒ Sanitary waste from onsite restroom facilities
☒ Trash from various construction activities/receptacles
☒ Long-term stockpiles of material and waste
☒ Discharges from concrete washout activities, runoff from concrete cutting activities, and other concrete related activities.
☐ Other: _____
☐ Other: _____
☐ Other: _____

1.11 RECEIVING WATERS:
Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody
Various playas, Guthrie Lake, Skeen Lake, South Fork Double Mountain Fork Brazos River, Lake Alan Henry	Double Mountain Fork Brazos River (1241); impaired for bacteria.
NO TMDLs or I-PLANS were identified.	

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: TxDOT

☒ Development of plans and specifications
☒ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
☒ Post Construction Site Notice
☐ Submit NOI/CSN to local MS4
☒ Perform SWP3 inspections
☒ Maintain SWP3 records and update to reflect daily operations
☒ Complete and submit Notice of Termination to TCEQ
☒ Maintain SWP3 records for 3 years
☐ Other: _____
☐ Other: _____

NOTE: Environmental Documentation shall be uploaded to Site Manager and Projectwise within 7 calendar days per CGP Part III.E.

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

☒ Day To Day Operational Control
☒ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
☒ Post Construction Site Notice
☐ Submit NOI/CSN to local MS4
☒ Maintain schedule of major construction activities
☒ Install, maintain and modify BMPs
☒ Complete and submit Notice of Termination to TCEQ
☒ Maintain SWP3 records for 3 years
☐ Other: _____
☐ Other: _____

NOTE: Environmental Documentation must be readily available

1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:

MS4 Entity
NONE

LBB DISTRICT ADVISEMENT:Within the project area there area identified Waters of the United States (W.O.T.U.S). Please review the EPIC for any applicable permits, best management practices, or environmental commitments that may apply. Listed Below are the identified WOTUS(s) in the project limits:

LBB DISTRICT NOTE:
Concrete truck wash-out is allowed if the following are provided:
a) wash-out of concrete trucks to surface waters in the state, including storm sewer drains and inlets is prohibited.
b) washout shall be to a structural control
c) the direct discharge of wash-out water is prohibited at all times
d) the discharge shall not contribute to groundwater contamination
e) wash-out areas must be shown on the site map;
f) wash-out pits shall be bermed and lined with plastic

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STORMWATER POLLUTION PREVENTION PLAN (SWP3) OVER 1 ACRE

(US 87)

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			180
STATE	STATE DIST.	COUNTY	
TEXAS	LBB	LUBBOCK, ETC.	
CONT.	SECT.	JOB	HIGHWAY NO.
0053	01	136	US 84, ETC.

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- ☐ ☐ Protection of Existing Vegetation
- ☐ ☐ Vegetated Buffer Zones
- ☒ ☐ Soil Retention Blankets
- ☐ ☐ Geotextiles
- ☐ ☐ Mulching/ Hydromulching
- ☐ ☐ Soil Surface Treatments
- ☐ ☐ Temporary Seeding
- ☐ ☐ Permanent Planting, Sodding or Seeding
- ☒ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Vertical Tracking
- ☐ ☐ Interceptor Swale
- ☐ ☐ Riprap
- ☐ ☐ Diversion Dike
- ☐ ☐ Temporary Pipe Slope Drain
- ☐ ☐ Embankment for Erosion Control
- ☐ ☐ Paved Flumes
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- ☒ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Dewatering Controls
- ☐ ☐ Inlet Protection
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☒ ☐ Sandbag Berms
- ☒ ☐ Sediment Control Fence
- ☐ ☐ Stabilized Construction Exit
- ☐ ☐ Floating Turbidity Barrier
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Vegetated Filter Strips
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

Sediment control BMPs requiring design capacity calculations (See SWP3 Attachment 1.3.):

T / P

- ☐ ☐ Sediment Trap
  - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
  - ☐ 3,600 cubic feet of storage per acre drained
- ☐ ☐ Sedimentation Basin
  - ☐ Not required (<10 acres disturbed)
  - ☐ Required (>10 acres) and implemented.
    - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
    - ☐ 3,600 cubic feet of storage per acre drained
  - ☒ Required (>10 acres), but not feasible due to:
    - ☒ Available area/Site geometry
    - ☐ Site slope/Drainage patterns
    - ☐ Site soils/Geotechnical factors
    - ☒ Public safety
    - ☒ Other: _____

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- ☒ Excess dirt/mud on road removed daily
- ☐ Haul roads dampened for dust control
- ☐ Loaded haul trucks to be covered with tarpaulin
- ☒ Stabilized construction exit
- ☐ Daily street sweeping
- ☐ Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- ☒ Chemical Management
- ☒ Concrete and Materials Waste Management
- ☒ Debris and Trash Management
- ☒ Dust Control
- ☒ Sanitary Facilities
- ☒ Other: LIDDED DUMPSTER (Part III.G.4.c in CGP)

Litter and Construction Debris:
Storage of construction and waste materials on-site shall be temporary. The project contractor shall establish a schedule for the regular removal of litter and construction debris: the schedule shall be approved by the project engineer; and, once approved, implemented by the contractor. As needed. The project engineer shall direct the contractor to establish good housekeeping measures consistent with the TCEQ's Construction General Permit.

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- ☒ Fire hydrant flushings
- ☒ Irrigation drainage
- ☒ Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- ☒ Potable water sources
- ☒ Springs
- ☒ Uncontaminated groundwater
- ☒ Water used to wash vehicles or control dust
- ☒ Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

NOTE: Discharges from dewatering activities are prohibited unless managed by appropriate controls per the CGP. Part III.G.3

2.8 DEWATERING:

Dewatering discharges of accumulated stormwater, groundwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

2.9 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

When dewatering activities are present, a daily inspection will be conducted once per day during those activities and documented in accordance with CGP and TxDOT requirements.

2.10 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

Inspection of Controls:
Lubbock District: an Informal Inspection of controls shall occur every work day; a formal inspection of controls accompanied by an inspection report using Form 2118 shall occur every seven calendar days. Inspectors must inspect disturbed areas that have not been finally stabilized, areas that are used for storage of materials and that are exposed to rain. discharge locations and structural controls for evidence of, or the potential for. pollutants entering the drainage system. The SWP3 must be modified based on the results of Inspections to better control pollutants In runoff. Revisions to the SWP3 must be completed within seven calendar days following inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described In the SWP3 and wherever possible those changes implemented before the next storm event.

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1/26/2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3) OVER 1 ACRE

(US 87) Sheet 4 of 6

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			181
STATE	STATE DIST.	COUNTY	
TEXAS	LBB	LUBBOCK, ETC.	
CONT.	SECT.	JOB	HIGHWAY NO.
0053	01	136	US 84, ETC.

DESCRIPTION OF BMPs USED TO MINIMIZE POLLUTION IN RUNOFF:
EROSION AND SEDIMENT CONTROLS: If it is necessary to pump water, BMP's shall be used to reduce the off-site transport of sediment. BMP's shall be installed per the manufacturer specifications or as directed by the Engineer.
GENERAL SCHEDULE FOR IMPLEMENTATION OF SW3P CONTROLS:

CONTROL	IMPLEMENTATION SCHEDULE AND DESCRIPTION	REMOVAL SCHEDULE
general, various controls	control measures are to be provided at a time and in a manner that will minimize impacts to receiving waters	at final stabilization; at the resumption of construction (temporary measures); at the direction of the SW3P plan; at the direction of the project manager
rock filter dams	to be installed prior to soil disturbing activities in the surrounding areas	at final stabilization or as directed by the project engineer
sandbag berms	to be installed prior to the start of construction; sandbag berms are to serve as water velocity dissipaters, as ditch blocks, as sedimentation basins, in support of other control devices, and as a final multiple control for water leaving the construction zone	at final stabilization or as directed by the project engineer
silt fence	silt fence will be installed prior to the start of construction along right-of-way lines silt fence will be installed as quickly as feasible (where it is reasonable to do so) at the toe of header bank and other slopes silt fence may be installed at the start of construction, during construction as appropriate, and during construction to support other controls as needed	at final stabilization or as directed by the project engineer at final stabilization or as directed by the project engineer at the removal of the construction exit, at final stabilization, or as directed by the project engineer
tackifiers/emulsions	soil tackifiers may be used to control dust	erosion controls that are designed to remain in-place for a indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal (CGP, page 23)
water	to be used to suppress dust and compact dirt on an as needed schedule	erosion controls that are designed to remain in-place for a indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal (CGP, page 23)
seed, temporary	to be installed, when apprppriate, in disturbed areas where construction has temporarily ceased for 21 days	erosion controls that are designed to remain in-place for a indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal (CGP, page 23)
seed, permanent	to be installed as a final stabilization measure where construction is complete or as directed by the Engineer	erosion controls that are designed to remain in-place for a indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal (CGP, page 23)
construction exits	to be installed at all construction vehicle exit points to publicly traveled ways prior to the use of these exits by construction vehicles	as directed by construction conditions or by the Engineer
erosion control logs	to be installed prior to the start of construction; erosion control logs are to serve as water velocity dissipaters, as ditchblocks, as sedimentation basins, and in support of other control devices.	as directed by construction conditions or by the Engineer
soil retention blankets	to be installed as a final stabilization measure where construction is complete or as directed by the Engineer	erosion controls that are designed to remain in-place for a indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal (CGP, page 23)
inlet protectors	to be installed to cover curb inlets with support from sandbags or as directed by the Engineer	as directed by construction conditions or by the Engineer
compost socks	to be installed as channel blocks, inlet protectors, and to support sandbag berms, silt fences or as directed by the Engineer	as directed by construction conditions or by the Engineer

Notes from the Lubbock District:
-This is a general schedule for the installation of and removal of SW3P best management practice controls. The final determination of the implementation and removal of controls is at the discretion of the project engineer.
-Control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications. If periodic inspections or other information indicates control has been used incorrectly, or that the control is performing inadequately, the operator must replace or modify the control as soon as practicable after the discovery that the control has been used incorrectly, is performing inadequately, or is damaged.
-Sediment must be removed from traps and sedimentation ponds no later than the time that design capacity has been reduced by 50 percent.
-If sediment escapes the site, accumulations must be removed at a frequency to minimize further negative effects, and whenever feasible, prior to the next rain event.
-Controls must be developed to limit, to the extent practicable, the off-site transport of litter, construction debris, and construction materials.
-Erosion and sediment controls must be designed to retain sediment on-site to the extent practicable with consideration for local topography, soil type, and rainfall. Controls must also be designed and utilized to reduce the off-site transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water.

MAINTENANCE REQUIREMENTS:
Control measures shall be properly installed and maintained according to the manufacturer's specifications. Sediment must be removed from BMP's as directed by the SW3P plan requirements, and as directed by the manufacturer's recommendations, but no later than the time at which the capacity of the BMP has been reduced by 50 percent. If sediment or other pollutants escape the site, accumulations will be removed to reduce further negative effects. If inspections or other information indicates a control has been installed, used, or is performing inadequately, the contractor must modify or replace the control as soon as practicable after the problem is discovered. Controls shall be maintained in effective operating condition.
If inspections determine that BMPs are not operating effectively, maintenance shall be performed as necessary to continue the effectiveness of the controls. Controls that have been intentionally disabled, run over, removed, or otherwise made ineffective, must be corrected or replaced at discovery.

LITTER AND CONSTRUCTION DEBRIS:
The project contractor shall establish a schedule for the regular removal of litter and construction debris; this schedule shall be approved by the project engineer; and, once approved, implemented by the contractor. As needed, the project engineer shall direct the contractor to establish good housekeeping measures consistent with the TCEQ's Construction General Permit.

DESCRIPTION OF PERMANENT STORM WATER CONTROLS:
PERMANENT STORM WATER CONTROLS: A description of controls that will stay in-place after construction is completed must be included in the SW3P.

1. Riprap: concrete riprap can be installed as a permanent stabilization measure at locations where construction is completed must be included in the SW3P.
2. Existing Vegetation & Vegetative Buffers: to the extent practicable, existing vegetation will not be disturbed by construction activities; and, where feasible (especially at storm water discharge sites), existing vegetation will remain undisturbed to form a vegetative buffer between construction areas and areas undisturbed by construction.
3. Permanent Sodding/Seeding & Plantings: this is the establishment of permanent perennial vegetation. Permanent vegetation stabilizes soil by holding soil particles in-place. Vegetation filters sediments, helps soil absorb water, improves wildlife habitat, and enhances aesthetics of the site.
4. Permanent vegetation will remain in vegetated channels.

SEDIMENT CONTROL PRACTICES:
1. Sandbags: the purpose of a sandbag is to intercept sediment laden storm water from disturbed areas, create a detention pond, detain sediment and release water in a sheet flow. Sandbag berms are a general purpose sediment control device and will be used throughout the project to detain sediment on site. Sandbags will be placed in ditches and channels to form sedimentation basins. Sandbags will also be used where runoff exits the construction site to enter receiving waters and to support other storm water controls.

2. Silt fence: silt fence is to be installed with construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This is a general use control that will be used to create detention basins that retain sediment on-site; they will also be used in support of other controls such as construction exits and rock filter dams.
Silt fence will be used along playa lakes to reduce the loss of sediment from roadway front slopes; it may be used in ditches, channels, discharge points to support sandbag berms; may be used to support stabilized construction exits.

3. Rock Filter Dams: the purpose of a rock filter dam is to intercept and slow sediment laden water runoff from disturbed areas, retain the sediment and release the water in sheet flow. Rock filter dams will generally be used in high water velocity flow channels.

4. Stabilized Construction Exit: the purpose of the stabilized exit is to reduce the tracking of sediment and dirt onto public roadways beyond the construction zone.
Stabilized Construction Exits are to be in-place at exit points to streets and thoroughfares in urban areas and are to be used by all construction vehicles regardless of size. They are to be supported where appropriate with silt fence and mechanized brooms.

Sediment basins are required where feasible for common drainage locations that serve an area with 10 or more acres disturbed at one time. Temporary or permanent sediment basins that provide water storage capacity are located on the project; the following controls provide, where feasible, structural controls / sediment basins:
1. Sandbag Berm as a Sediment Basin: a temporary basin designed to intercept sediment-laden storm water runoff and to trap sediment on-site.
2. Vegetative Buffer Strip: vegetative buffer strips reduce water velocity which reduces the potential of water erosion and allows sediments to fall out of the storm water.
3. Silt Fence will be used to reduce the loss of sediment from roadway front slopes adjacent to playa lakes by filtering out silt laden storm water from construction area.

Erosion control and stabilization measures must be initiated immediately in portions of the site where construcion activities have ceased and will not resume for a period exceeding 14 calendar days. Stabilization measures that provide a protective cover must be initiated immediately in portions of the site where construction activities have permanently ceased (CGP Part III Sect. F2(b)iii page 33).

STABILIZATION PRACTICES AND OTHER REQUIRED CONTROLS AND BMPs:
1. Stabilized Construction Exit: a stabilized pad of stone, timber, or other stabilized surface located at points where construction traffic will leave the construction zone to enter a public roadway. The purpose of the stabilized exit is to reduce the tracking of sediment and dirt onto public roadways beyond the construction zone. Stabilized Construction Exits will be placed as needed.
2. Water: water will be used to temporarily suppress dust and compact dirt.
3. Tackifiers: tackifiers such as asphalt emulsion, guar, (and other natural tackifiers), and synthetic tackifiers will be used to control air (dust) & water erosion.
4. Existing Vegetation & Vegetative Buffers: to the extent practicable, existing vegetation will not be disturbed by construction activities; where feasible (especially at storm water discharge sites), existing vegetation will remain undisturbed to form a vegetative buffer between construction areas and areas undisturbed by construction.
5. Cleaning and Sweeping: clean and sweep curb and gutter sections twice a month to reduce dirt and trash or as directed.
6. Riprap: concrete riprap can be installed as a permanent stabilization measure at locations where construction is complete and permanent stabilization is required.
7. Tracking and Dust: Off-site tracking and generation of dust must be minimized.

ON-SITE STORAGE OF CONSTRUCTION AND WASTE MATERIALS:
1. Disposal methods must meet federal, state, and local waste management requirements. No construction waste shall be buried or burned on-site. Spoils of disposal, material storage, and waste materials from the demolition of existing roads and structures shall be stored in areas designated by the project engineer, and prevented from becoming a pollutant source with appropriate BMPs. Construction and waste materials that might be temporarily stored on-site include concrete and steel pipe; steel reinforcing bar, forms and frames; sand and gravel; wire, concrete and steel beams; wood and steel building units; and controls, construction signs and barricades. A list of construction and waste materials stored on site and controls will be presented to the Project Engineer.

2. Contractor shall design and utilize appropriate controls to minimize the offsite transport of suspended sediments and other pollutants, if it is necessary to pump or channel standing water from the site.

3. Litter, construction debris, and construction material exposed to stormwater shall be managed in a manner that prevents this material from becoming a pollutant. A regular sweep of the project shall be made to pick up litter. No construction material of any kind (including dirt) shall be discharged to a water of the United States (ephemeral streams and playa lakes) without a permit from the Corps of Engineers.

4. Oil, gasoline, grease, solvents, and other petroleum products are not to be stored on-site. Major vehicle maintenance shall occur on-site only under emergency conditions, and when this maintenance type is necessary, a plastic cover shall be used (and properly disposed of) to prevent petroleum products from contaminating the surrounding soil.

5. Potential Pollutant Sources from Areas Other than Construction:
oil, grease, and other petroleum fluids construction traffic at concrete plant and field office
sediment laden stormwater disturbed soil from concrete batch plant and field office
litter, motorists driving through the project

All best management practices available to this construction project are available to control non-construction generated pollutants including sand bag berms, silt fence, stabilized construction exits, sedimentation basins, and litter management programs among other controls listed in this document.

STORAGE TANKS:
Storage tanks that are above ground, regardless of whether they are used to store petroleum products, hazardous waste, or other hazardous material must follow the Summary of Federal Requirements.
Aboveground storage tanks (ASTs) used for the storage of petroleum products is regulated primarily under 40 CFR 112. These containers are used for purposes including, but not limited to, the storage of oil prior to use, while being used, or prior to further distribution in commerce.
A bulk storage container is 55 gal. or greater and may be aboveground, partially buried, bunkered, or completely buried. AST's include mobile storage containers such as trailers and tanked vehicles. Oil-filled electrical, operating, or manufacturing equipment is not a bulk storage container.
All bulk storage container installations must be constructed so a secondary means of containment is provided for the entire capacity of the largest single container and sufficient freeboard to contain precipitation. Diked areas must be sufficiently impervious to contain discharged oil.

Mobile/Portable AST:
Mobile or portable oil bulk storage containers must be positioned or located to prevent a discharge and furnished with a secondary means of containment, such as a dike or catchment basin, sufficient to contain the capacity of the largest single compartment or container with sufficient freeboard to contain precipitation.

DETERMINATION OF REPORTABLE QUANTITIES:
A list of each substance designated as hazardous in 40 CFR Part 116 is found in the project's SW3P folder. The 40 CFR 116 registration applies to quantities, when discharged into or upon the Waters of the United States, adjoining shorelines, into or upon the contiguous zone, or beyond the contiguous zone as provided in the Act.

NOTE:
Sediment basins are not feasible on the project because right-of-way is limited and the construction of a sedimentation basin would be within the boundaries of the roadway's clear zone and for the safety of motorists, sedimentation basins cannot be constructed within the clear zone. Since sedimentation basins are not feasible due to lack of right-of-way, mathematical calculations have not been developed.

STATE OF TEXAS
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1/26/2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3) NARRATIVE - OVER 1 ACRE

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			182
STATE	STATE DIST.	COUNTY	
TEXAS	LBB	LUBBOCK, ETC.	
CONT.	SECT.	JOB	HIGHWAY NO.
0053	01	136	US 84, ETC.

SECTION	CSJ	HIGHWAY	COUNTY	LIMITS	BEG. LAT.	END. LAT.	BEG. LONG.	END. LONG.
					FT	MI	FT	MI
1	0053-01-136	US 84	LUBBOCK	.37 MILES NORTH OF LUBBOCK COUNTY LINE TO LUBBOCK	33.3982457	33.3948254	101.6101729	101.6053839
2	0053-03-022	US 84	LYNN	LUBBOCKCOUNTY LINE TO GARZA COUNTY LINE	33.3948252	33.35993	101.6053837	101.556861
3	0053-04-045	US 84	GARZA	LYNNCOUNTY LINE TO POST (NORTH AVE. O)	33.359929	33.2017599	101.5568598	101.3848254
4	0053-05-053	US 84	GARZA	SL 46 TO FM 2458	33.1777907	33.0380434	101.3699224	101.1980295
5	0053-06-032	US 84	GARZA	CR 386 TO SCURRY COUNTY LINE	33.0356555	32.9674044	101.1951822	101.0962147
6	0068-02-049	US 87	LYNN	SL 472 TO S. SL 472	33.1772815	33.1528246	101.7949052	101.796421
7	0068-03-034	US 87	LYNN	S. SL 472 TO S. SL 76	33.1509176	32.9626798	101.7977708	101.8448525

STATE OF TEXAS
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1/26/2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3) NARRATIVE - OVER 1 ACRE ATTACHMENT SHEET

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			183
STATE	STATE DIST.	COUNTY	
TEXAS	LBB	LUBBOCK, ETC.	
CONT.	SECT.	JOB	HIGHWAY NO.
0053	01	136	US 84, ETC.

SUMMARY OF EROSION CONTROL LOGS - US 84							
BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-01-136 (LUBBOCK COUNTY)							
ECL-1	1009+50	X	X	MEDIAN	20		
ECL-2	1024+75	X	X	MEDIAN	20		
				SUBTOTAL: US 84	40		
				REPLACEMENT	20		
				CSJ-TOTAL US 84:	60		

SUMMARY OF EROSION CONTROL LOGS - US 84							
BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-03-022 (GARZA COUNTY)							
ECL-3	1040+50	X	X	MEDIAN	20		
ECL-4	1041+75	X	X	MEDIAN	20		
ECL-5	1049+75	X	X	MEDIAN	20		
ECL-6	1057+75	X	X	MEDIAN	20		
ECL-7	1059+00	X	X	MEDIAN	20		
ECL-8	1067+00		X	NB DITCH	30		
ECL-9	1099+75	X	X	MEDIAN	20		
ECL-10	1140+50	X	X	MEDIAN	20		
ECL-11	1141+75	X	X	MEDIAN	20		
ECL-12	1153+50	X	X	MEDIAN	20		
ECL-13	1155+00	X	X	MEDIAN	20		
ECL-14	1188+00	X	X	MEDIAN	20		
ECL-15	1212+00		X	NB DITCH	50		
				SUBTOTAL: US 84	300		
				REPLACEMENT	150		
				CSJ-TOTAL US 84:	450		

SUMMARY OF EROSION CONTROL LOGS - US 84							
BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-04-045 (GARZA COUNTY)							
ECL-16	1220+75	X	X	MEDIAN	20		
ECL-17	1222+00	X	X	MEDIAN	20		
ECL-18	1229+25	X	X	MEDIAN	20		
ECL-19	1230+50	X	X	MEDIAN	20		
ECL-20	1243+00	X	X	MEDIAN	20		
ECL-21	1244+00	X	X	MEDIAN	20		
ECL-22	1262+75	X	X	MEDIAN	20		
ECL-23	1284+25	X	X	MEDIAN	20		
ECL-24	1286+00	X	X	MEDIAN	20		
ECL-25	1301+75	X	X	MEDIAN	20		
ECL-26	1317+50	X	X	MEDIAN	20		
ECL-27	1319+75	X	X	MEDIAN	20		
ECL-28	1333+75	X	X	MEDIAN	20		
ECL-29	1345+00	X		SB DITCH	30		
ECL-30	1347+50	X	X	MEDIAN	20		
ECL-31	1349+25	X	X	MEDIAN	20		
ECL-32	1382+00	X	X	MEDIAN	20		
ECL-33	1412+50	X	X	MEDIAN	20		
ECL-34	1414+00	X	X	MEDIAN	20		
ECL-35	1436+00	X	X	MEDIAN	30		
ECL-36	1437+25	X	X	MEDIAN	30		
ECL-37	1438+00		X	NB DITCH	50		
ECL-38	1439+00	X	X	MEDIAN	30		
ECL-39	1440+00	X	X	MEDIAN	30		
ECL-40	1454+00	X	X	MEDIAN	30		
ECL-41	1456+00	X	X	MEDIAN	30		
ECL-42	1457+00	X	X	NB DITCH	50		
ECL-43	1458+00	X	X	MEDIAN	30		
ECL-44	1459+00	X	X	MEDIAN	30		
ECL-45	1474+00	X	X	MEDIAN	20		
ECL-46	1476+00	X	X	MEDIAN	20		
ECL-47	1493+00	X	X	MEDIAN	20		
ECL-48	1511+00	X	X	MEDIAN	20		
ECL-49	1512+50	X	X	MEDIAN	20		
ECL-50	1537+00	X	X	SB DITCH	70		
ECL-51	1550+00	X	X	NB DITCH	50		
ECL-52	1559+00	X	X	MEDIAN	20		
ECL-53	1607+00	X	X	MEDIAN	20		
ECL-54	1612+00	X	X	MEDIAN	20		
ECL-55	1613+00	X	X	MEDIAN	20		
ECL-56	1615+00	X	X	MEDIAN	20		
ECL-57	1628+00	X	X	MEDIAN	20		
ECL-58	1643+00	X	X	MEDIAN	20		
ECL-59	1644+50	X	X	MEDIAN	20		
ECL-60	1662+00	X	X	MEDIAN	20		
				SUBTOTAL: US 84	1130		
				REPLACEMENT	565		
				CSJ-TOTAL US 84:	1695		

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STATE OF TEXAS
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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 SUMMARY
(U.S. 84 NORTH)

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		184

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SUMMARY OF EROSION CONTROL LOGS - US 84

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-04-045 (GARZA COUNTY)							
ECL-61	1678+00	X	X	MEDIAN	20		
ECL-62	1679+00	X	X	MEDIAN	20		
ECL-63	1681+00	X	X	MEDIAN	20		
ECL-64	1689+00	X	X	MEDIAN	20		
ECL-65	1691+00	X	X	MEDIAN	20		
ECL-66	1711+00	X	X	MEDIAN	30		
ECL-67	1712+00	X	X	MEDIAN	30		
ECL-68	1713+00	X	X	SB DITCH	50		
ECL-69	1714+00	X	X	MEDIAN	30		
ECL-70	1715+00	X	X	MEDIAN	30		
ECL-71	1723+50	X	X	MEDIAN	20		
ECL-72	1755+00	X	X	MEDIAN	20		
ECL-73	1757+00	X	X	MEDIAN	20		
ECL-74	1769+00	X	X	MEDIAN	20		
ECL-75	1771+00	X	X	MEDIAN	20		
ECL-76	1776+00	X		SB DITCH	40		
ECL-77	1796+00	X	X	MEDIAN	20		
ECL-78	1821+50	X	X	MEDIAN	20		
ECL-79	1823+00	X	X	MEDIAN	20		
ECL-80	1840+00		X	NB DITCH	70		
ECL-81	1842+00	X	X	MEDIAN	20		
ECL-82	1860+00	X	X	MEDIAN	20		
ECL-83	1861+50	X	X	MEDIAN	20		
ECL-84	1864+00	X	X	MEDIAN	20		
ECL-85	1866+00		X	NB DITCH	40		
ECL-86	1868+00	X	X	MEDIAN	20		
ECL-87	1869+00	X	X	MEDIAN	20		
ECL-88	1886+00	X	X	MEDIAN	20		
ECL-89	1887+50	X	X	MEDIAN	20		
ECL-90	1893+00	X	X	NB DITCH	50		
ECL-91	1902+50	X	X	MEDIAN	20		
ECL-92	1912+00		X	NB DITCH	120		
ECL-93	1917+50	X	X	MEDIAN	20		
ECL-94	1919+00	X	X	MEDIAN	20		
ECL-95	1929+00	X	X	MEDIAN	20		
ECL-96	1945+00	X	X	MEDIAN	20		
ECL-97	1946+50	X	X	MEDIAN	20		
ECL-98	1949+00	X		SB DITCH	50		
ECL-99	1954+00	X	X	MEDIAN	20		
ECL-100	1955+50	X	X	MEDIAN	20		
ECL-101	1965+00	X	X	MEDIAN	20		
ECL-102	1974+00	X	X	MEDIAN	20		
ECL-103	1975+00	X	X	MEDIAN	20		
ECL-104	1988+00	X	X	MEDIAN	20		
ECL-105	1989+00	X	X	MEDIAN	20		
ECL-106	1995+00	X	X	MEDIAN	20		
ECL-107	1996+00	X	X	MEDIAN	20		
ECL-108	2005+00	X	X	MEDIAN	20		
ECL-109	2010+50	X	X	MEDIAN	20		
ECL-110	2022+00	X	X	MEDIAN	20		
				SUBTOTAL: US 84	1320		
				REPLACEMENT	660		
				CSJ-TOTAL US 84:	1980		

SUMMARY OF SAND BAGS - US 84

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-03-022 (GARZA COUNTY)							
SB-1	1067+00	X	X	MEDIAN	40		
SB-2	1067+00	X	X	MEDIAN	60		
SB-3	1212+00	X	X	MEDIAN	40		
SB-4	1212+00	X	X	MEDIAN	60		
				SUBTOTAL US 84:	200		
				REPLACEMENT	100		
				CSJ-TOTAL US 84:	300		

SUMMARY OF SAND BAGS - US 84

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-04-045 (GARZA COUNTY)							
SB-5	1345+00	X	X	MEDIAN	30		
SB-6	1345+00	X	X	MEDIAN	50		
SB-7	1537+00	X	X	MEDIAN	50		
SB-8	1537+00	X	X	MEDIAN	70		
SB-9	1550+00	X	X	MEDIAN	50		
SB-10	1550+00	X	X	MEDIAN	50		
SB-11	1776+00	X	X	MEDIAN	40		
SB-12	1776+00	X	X	MEDIAN	40		
SB-13	1840+00	X	X	MEDIAN	60		
SB-14	1883+00	X	X	MEDIAN	30		
SB-15	1883+00	X	X	MEDIAN	30		
SB-16	1893+00	X	X	MEDIAN	50		
SB-17	1912+00	X	X	MEDIAN	50		
SB-18	1949+00	X	X	MEDIAN	46		
				SUBTOTAL US 84:	646		
				REPLACEMENT	323		
				CSJ-TOTAL US 84:	969		

STATE OF TEXAS
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1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 SUMMARY (U.S. 84 NORTH)

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		185

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SUMMARY OF EROSION CONTROL LOGS - US 84

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-05-053 (GARZA COUNTY)							
ECL-111	62+00	X	X	MEDIAN	20		
ECL-112	71+00		X	NB DITCH	40		
ECL-113	72+00		X	NB DITCH	40		
ECL-114	72+25	X	X	MEDIAN	30		
ECL-115	71+00	X		SB DITCH	30		
ECL-116	72+00	X		SB DITCH	30		
ECL-117	76+00	X	X	MEDIAN	30		
ECL-118	76+00		X	NB DITCH	40		
ECL-119	77+00		X	NB DITCH	40		
ECL-120	76+00	X		SB DITCH	50		
ECL-121	77+00	X		SB DITCH	50		
ECL-122	82+00	X	X	MEDIAN	20		
ECL-123	84+00	X	X	MEDIAN	20		
ECL-124	96+50	X	X	MEDIAN	20		
ECL-125	98+00	X	X	MEDIAN	20		
ECL-126	118+50	X	X	MEDIAN	20		
ECL-127	132+00		X	NB DITCH	20		
ECL-128	133+00		X	NB DITCH	20		
ECL-129	133+50	X	X	MEDIAN	30		
ECL-130	132+00	X		SB DITCH	20		
ECL-131	133+00	X		SB DITCH	20		
ECL-132	135+00		X	NB DITCH	20		
ECL-133	136+00		X	NB DITCH	20		
ECL-134	135+50	X	X	MEDIAN	20		
ECL-135	135+00	X		SB DITCH	20		
ECL-136	136+00	X		SB DITCH	20		
ECL-137	139+00	X	X	MEDIAN	20		
ECL-138	141+00	X	X	MEDIAN	20		
ECL-139	152+00	X	X	MEDIAN	20		
ECL-140	153+00	X	X	MEDIAN	20		
ECL-141	162+50	X	X	MEDIAN	30		
ECL-142	162+75		X	NB DITCH	50		
ECL-143	163+50		X	NB DITCH	50		
ECL-144	162+75	X		SB DITCH	50		
ECL-145	163+50	X		SB DITCH	50		
ECL-146	165+50		X	NB DITCH	50		
ECL-147	166+25		X	NB DITCH	50		
ECL-148	165+75	X	X	MEDIAN	30		
ECL-149	165+50	X		SB DITCH	50		
ECL-150	166+25	X		SB DITCH	50		
ECL-151	190+00	X	X	MEDIAN	20		
ECL-152	206+00		X	NB DITCH	20		
ECL-153	207+00		X	NB DITCH	20		
ECL-154	207+50	X	X	MEDIAN	40		
ECL-155	206+00	X		SB DITCH	30		
ECL-156	207+00	X		SB DITCH	30		
ECL-157	209+50		X	NB DITCH	20		
ECL-158	210+50		X	NB DITCH	20		
ECL-159	209+50	X	X	MEDIAN	40		
ECL-160	209+50	X		SB DITCH	30		
ECL-161	210+50	X		SB DITCH	30		
ECL-162	215+00	X	X	MEDIAN	20		
ECL-163	216+00	X	X	MEDIAN	20		
ECL-164	226+50	X	X	MEDIAN	20		
ECL-165	236+00		X	NB DITCH	20		
ECL-166	237+00		X	NB DITCH	20		
ECL-167	237+00	X	X	MEDIAN	30		
ECL-168	236+00	X		SB DITCH	30		
ECL-169	237+00	X		SB DITCH	30		
ECL-170	239+50	X		NB DITCH	20		
ECL-171	240+50	X		NB DITCH	20		
ECL-172	240+50	X	X	MEDIAN	30		
ECL-173	239+50		X	SB DITCH	30		
ECL-174	240+50		X	SB DITCH	30		
ECL-175	254+00	X	X	MEDIAN	20		
ECL-176	268+50	X	X	MEDIAN	20		
ECL-177	270+00	X	X	MEDIAN	20		
ECL-178	281+50	X	X	MEDIAN	20		
ECL-179	293+50	X	X	MEDIAN	20		
ECL-180	294+50	X	X	MEDIAN	20		
ECL-181	305+00		X	NB DITCH	30		
ECL-182	306+00		X	NB DITCH	30		
ECL-183	305+50	X	X	MEDIAN	40		
ECL-184	305+00	X		SB DITCH	30		
ECL-185	306+00	X		SB DITCH	30		
ECL-186	308+50	X		NB DITCH	30		
ECL-187	309+50	X		NB DITCH	30		
ECL-188	309+00	X	X	MEDIAN	40		
ECL-189	308+50	X		SB DITCH	30		
ECL-190	309+50	X		SB DITCH	30		
				SUBTOTAL: US 84	2310		
				REPLACEMENT	1155		
				CSJ-TOTAL US 84:	3465		

SUMMARY OF SEDIMENT CONTROL FENCE US 84

SCF NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-05-053 (GARZA COUNTY)							
SCF-1	73+50	X	X	MEDIAN	40		
SCF-2	75+00	X	X	MEDIAN	40		
SCF-3	133+25	X	X	MEDIAN	44		
SCF-4	133+25	X	X	MEDIAN	44		
SCF-5	164+00	X	X	MEDIAN	42		
SCF-6	165+00	X	X	MEDIAN	42		
SCF-7	208+00	X	X	MEDIAN	40		
SCF-8	209+00	X	X	MEDIAN	40		
SCF-9	237+50	X	X	MEDIAN	40		
SCF-10	239+00	X	X	MEDIAN	40		
SCF-11	306+50	X	X	MEDIAN	40		
SCF-12	308+25	X	X	MEDIAN	40		
SCF-13	398+50	X	X	MEDIAN	40		
SCF-14	399+50	X	X	MEDIAN	40		
SCF-15	691+00	X	X	MEDIAN	40		
SCF-16	692+00	X	X	MEDIAN	40		
SCF-17	773+00	X	X	MEDIAN	40		
SCF-18	774+00	X	X	MEDIAN	40		
SCF-19	801+50	X	X	MEDIAN	40		
SCF-20	810+00	X	X	MEDIAN	40		
				SUBTOTAL: US 84	812		
				REPLACEMENT	406		
				CSJ-TOTAL US 84:	1218		

SUMMARY OF SAND BAGS - US 84

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-05-053 (GARZA COUNTY)							
SB-19	119+00	X	X	MEDIAN	50		
SB-20	119+00	X	X	MEDIAN	50		
SB-21	332+00	X	X	MEDIAN	50		
SB-22	362+00	X	X	MEDIAN	60		
SB-23	380+00	X	X	MEDIAN	50		
SB-24	455+00	X	X	MEDIAN	50		
SB-25	482+00	X	X	MEDIAN	50		
SB-26	512+00	X	X	MEDIAN	50		
SB-27	539+00	X	X	MEDIAN	50		
SB-28	551+00	X	X	MEDIAN	50		
SB-29	201+50	X	X	MEDIAN	50		
SB-30	623+50	X	X	MEDIAN	50		
SB-31	699+00	X	X	MEDIAN	50		
SB-32	730+00	X	X	MEDIAN	50		
SB-33	762+50	X	X	MEDIAN	50		
				SUBTOTAL US 84:	760		
				REPLACEMENT	380		
				CSJ-TOTAL US 84:	1140		

STATE OF TEXAS
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1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 SUMMARY
(U.S. 84 SOUTH)

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		186

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SUMMARY OF EROSION CONTROL LOGS - US 84

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-05-053 (GARZA COUNTY)							
ECL-191	346+25	X	X	MEDIAN	20		
ECL-192	362+00		X	NB DITCH	40		
ECL-193	380+00		X	NB DITCH	50		
ECL-194	383+50	X	X	MEDIAN	20		
ECL-195	385+25	X	X	MEDIAN	20		
ECL-196	398+50		X	NB DITCH	20		
ECL-197	399+50		X	NB DITCH	20		
ECL-198	397+50	X	X	MEDIAN	40		
ECL-199	396+50	X		SB DITCH	30		
ECL-200	397+50	X		SB DITCH	30		
ECL-201	401+00		X	NB DITCH	20		
ECL-202	402+00		X	NB DITCH	20		
ECL-203	400+00	X	X	MEDIAN	40		
ECL-204	399+50	X		SB DITCH	30		
ECL-205	400+25	X		SB DITCH	30		
ECL-206	430+00	X	X	MEDIAN	20		
ECL-207	455+00		X	NB DITCH	50		
ECL-208	460+00	X	X	MEDIAN	20		
ECL-209	461+50	X	X	MEDIAN	20		
ECL-210	475+50	X	X	MEDIAN	20		
ECL-211	477+50	X	X	MEDIAN	20		
ECL-212	488+00	X	X	MEDIAN	20		
ECL-213	498+00	X	X	MEDIAN	20		
ECL-214	499+50	X	X	MEDIAN	20		
ECL-215	510+00	X	X	MEDIAN	20		
ECL-216	512+00		X	NB DITCH	50		
ECL-217	562+50	X	X	MEDIAN	20		
ECL-218	601+50		X	NB DITCH	50		
ECL-219	623+50		X	NB DITCH	50		
ECL-220	629+50	X	X	MEDIAN	20		
ECL-221	660+00	X	X	MEDIAN	20		
ECL-222	661+25	X	X	MEDIAN	20		
ECL-223	691+00		X	NB DITCH	30		
ECL-224	692+00		X	NB DITCH	30		
ECL-225	690+50	X	X	MEDIAN	40		
ECL-226	689+00	X		SB DITCH	30		
ECL-227	690+00	X		SB DITCH	30		
ECL-228	693+00		X	NB DITCH	30		
ECL-229	694+00		X	NB DITCH	30		
ECL-230	692+50	X	X	MEDIAN	40		
ECL-231	692+00	X		SB DITCH	30		
ECL-232	693+00	X		SB DITCH	30		
ECL-233	699+00		X	NB DITCH	50		
ECL-234	704+00	X	X	MEDIAN	20		
ECL-235	742+00	X	X	MEDIAN	20		
ECL-236	744+00	X	X	MEDIAN	20		
ECL-237	754+00	X	X	MEDIAN	20		
ECL-238	762+50		X	NB DITCH	50		
ECL-239	763+00	X	X	MEDIAN	20		
ECL-240	765+00	X	X	MEDIAN	20		
ECL-241	771+50	X	X	MEDIAN	40		
ECL-242	773+50	X	X	MEDIAN	40		
ECL-243	776+00	X	X	MEDIAN	20		
ECL-244	786+50	X	X	MEDIAN	20		
ECL-245	788+00	X	X	MEDIAN	20		
ECL-246	800+00		X	NB DITCH	40		
ECL-247	801+00		X	NB DITCH	40		
ECL-248	800+00	X		SB DITCH	30		
ECL-249	801+00	X		SB DITCH	30		
ECL-250	811+00		X	NB DITCH	40		
ECL-251	812+00		X	NB DITCH	40		
ECL-252	811+00	X		SB DITCH	30		
ECL-253	812+00	X		SB DITCH	30		
ECL-254	816+00	X	X	MEDIAN	20		
				SUBTOTAL: US 84	1870		
				REPLACEMENT	935		
				CSJ-TOTAL US 84:	2805		

SUMMARY OF SEDIMENT CONTROL FENCE - US 84

SCF NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-06-032 (GARZA COUNTY)							
SCF-21	823+00	X	X	MEDIAN	40		
SCF-22	824+00	X	X	MEDIAN	40		
SCF-23	862+00	X	X	MEDIAN	40		
SCF-24	863+00	X	X	MEDIAN	40		
SCF-25	875+00	X	X	MEDIAN	40		
SCF-26	876+00	X	X	MEDIAN	40		
SCF-27	917+00	X	X	MEDIAN	40		
SCF-28	918+00	X	X	MEDIAN	40		
SCF-29	954+25	X	X	MEDIAN	34		
SCF-30	959+00	X	X	MEDIAN	34		
SCF-31	1023+50	X	X	MEDIAN	24		
SCF-32	1024+50	X	X	MEDIAN	24		
SCF-33	1037+75	X	X	MEDIAN	40		
SCF-34	1039+50	X	X	MEDIAN	40		
SCF-35	1119+00	X	X	MEDIAN	40		
SCF-36	1120+25	X	X	MEDIAN	40		
SCF-37	1132+00	X	X	MEDIAN	40		
SCF-38	1133+00	X	X	MEDIAN	40		
SCF-39	1152+75	X	X	MEDIAN	40		
SCF-40	1154+00	X	X	MEDIAN	40		
SCF-41	1192+00	X	X	MEDIAN	40		
SCF-42	1194+00	X	X	MEDIAN	40		
SCF-43	1206+50	X	X	MEDIAN	40		
SCF-44	1207+50	X	X	MEDIAN	40		
				SUBTOTAL: US 84	916		
				REPLACEMENT	458		
				CSJ-TOTAL US 84:	1374		

SUMMARY OF SAND BAGS - US 84

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-06-032 (GARZA COUNTY)							
SB-34	893+50	X	X	MEDIAN	30		
SB-35	968+00	X	X	MEDIAN	50		
SB-36	1001+00	X	X	MEDIAN	50		
SB-37	1105+00	X	X	MEDIAN	50		
SB-38	1147+00	X	X	MEDIAN	50		
SB-39	1224+50	X	X	MEDIAN	50		
				SUBTOTAL US 84:	280		
				REPLACEMENT	140		
				CSJ-TOTAL US 84:	420		

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 SUMMARY
(U.S. 84 SOUTH)

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		187

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SUMMARY OF EROSION CONTROL LOGS - US 84

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-06-032 (GARZA COUNTY)							
ECL-255	820+00	X	X	MEDIAN	20		
ECL-256	839+00	X	X	MEDIAN	20		
ECL-257	857+00	X	X	MEDIAN	20		
ECL-258	859+00	X	X	MEDIAN	20		
ECL-259	862+00		X	NB DITCH	30		
ECL-260	863+00		X	NB DITCH	30		
ECL-261	862+00	X		SB DITCH	30		
ECL-262	863+00	X		SB DITCH	30		
ECL-263	865+00	X	X	MEDIAN	30		
ECL-264	866+00	X	X	MEDIAN	30		
ECL-265	865+00	X	X	MEDIAN	30		
ECL-266	866+00	X	X	MEDIAN	30		
ECL-267	866+50	X	X	MEDIAN	20		
ECL-268	893+50	X	X	MEDIAN	50		
ECL-269	894+00	X	X	MEDIAN	20		
ECL-270	912+00	X	X	MEDIAN	20		
ECL-271	913+00	X	X	MEDIAN	20		
ECL-272	916+00	X	X	NB DITCH	30		
ECL-273	917+00		X	NB DITCH	30		
ECL-274	916+00		X	SB DITCH	30		
ECL-275	917+00	X		SB DITCH	30		
ECL-276	919+00		X	NB DITCH	30		
ECL-277	920+00		X	NB DITCH	30		
ECL-278	919+00		X	SB DITCH	30		
ECL-279	920+00		X	SB DITCH	30		
ECL-280	934+00	X	X	MEDIAN	20		
ECL-281	953+00		X	NB DITCH	40		
ECL-282	954+00		X	NB DITCH	40		
ECL-283	953+00	X		SB DITCH	40		
ECL-284	954+00	X		SB DITCH	40		
ECL-285	960+00		X	NB DITCH	40		
ECL-286	961+00		X	NB DITCH	40		
ECL-287	960+00	X		SB DITCH	40		
ECL-288	961+00	X		SB DITCH	40		
ECL-289	968+00	X		SB DITCH	50		
ECL-290	973+00	X	X	MEDIAN	20		
ECL-291	986+00	X	X	MEDIAN	20		
ECL-292	987+00	X	X	MEDIAN	20		
ECL-293	1001+00	X		SB DITCH	50		
ECL-294	1004+00	X	X	MEDIAN	20		
ECL-295	1011+00	X	X	MEDIAN	20		
ECL-296	1012+00		X	NB DITCH	50		
ECL-297	1013+00	X	X	MEDIAN	20		
ECL-298	1016+50	X	X	MEDIAN	20		
ECL-299	1017+50		X	NB DITCH	50		
ECL-300	1018+50	X	X	MEDIAN	20		
ECL-301	1021+00	X	X	MEDIAN	20		
ECL-302	1022+00		X	NB DITCH	20		
ECL-303	1023+00		X	NB DITCH	20		
ECL-304	1022+00	X		SB DITCH	20		
ECL-305	1023+00	X		SB DITCH	20		
ECL-306	1024+50		X	NB DITCH	20		
ECL-307	1025+00		X	NB DITCH	20		
ECL-308	1024+75	X	X	MEDIAN	20		
ECL-309	1024+75	X		SB DITCH	20		
ECL-310	1025+25	X		SB DITCH	20		
ECL-311	1036+75		X	NB DITCH	20		
ECL-312	1037+75		X	NB DITCH	20		
ECL-313	1036+50	X	X	MEDIAN	30		
ECL-314	1037+00	X	X	MEDIAN	30		
ECL-315	1036+75	X		SB DITCH	20		
ECL-316	1037+75	X		SB DITCH	20		
ECL-317	1039+75		X	NB DITCH	20		
ECL-318	1040+50		X	NB DITCH	20		
ECL-319	1040+25	X	X	MEDIAN	30		
ECL-320	1041+25	X	X	MEDIAN	30		
ECL-321	1039+75	X		SB DITCH	20		
ECL-322	1040+50	X		SB DITCH	20		
ECL-323	1052+00		X	NB DITCH	20		
ECL-324	1053+00		X	NB DITCH	20		
ECL-325	1052+75	X	X	MEDIAN	30		
ECL-326	1053+25	X	X	MEDIAN	30		
ECL-327	1052+00	X		SB DITCH	20		
ECL-328	1053+00	X		SB DITCH	20		
ECL-329	1056+00		X	NB DITCH	20		
ECL-330	1057+00		X	NB DITCH	20		
ECL-331	1055+50	X	X	MEDIAN	30		
ECL-332	1056+50	X	X	MEDIAN	30		
ECL-333	1056+00	X		SB DITCH	20		
ECL-334	1057+00	X		SB DITCH	20		
				SUBTOTAL: US 84	2150		
				REPLACEMENT	1075		
				CSJ-TOTAL US 84:	3225		

SUMMARY OF EROSION CONTROL LOGS - US 84

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0053-06-032 (GARZA COUNTY)							
ECL-335	1064+00	X	X	MEDIAN	20		
ECL-336	1088+00	X	X	MEDIAN	20		
ECL-337	1089+50	X	X	MEDIAN	20		
ECL-338	1104+00	X	X	MEDIAN	20		
ECL-339	1105+00	X		SB DITCH	50		
ECL-340	1118+00		X	NB DITCH	30		
ECL-341	1118+75		X	NB DITCH	30		
ECL-342	1118+25	X	X	MEDIAN	30		
ECL-343	1118+00	X		SB DITCH	30		
ECL-344	1118+75	X		SB DITCH	30		
ECL-345	1120+50		X	NB DITCH	30		
ECL-346	1121+50		X	NB DITCH	30		
ECL-347	1122+25	X	X	MEDIAN	30		
ECL-348	1120+50	X		SB DITCH	30		
ECL-349	1121+50	X		SB DITCH	30		
ECL-350	1130+00	X	X	MEDIAN	20		
ECL-351	1131+00		X	NB DITCH	30		
ECL-352	1131+75		X	NB DITCH	30		
ECL-353	1131+00	X		SB DITCH	20		
ECL-354	1131+75	X		SB DITCH	20		
ECL-355	1133+50		X	NB DITCH	30		
ECL-356	1134+25		X	NB DITCH	30		
ECL-357	1133+50	X		SB DITCH	20		
ECL-358	1134+25	X		SB DITCH	20		
ECL-359	1137+75	X	X	MEDIAN	20		
ECL-360	1139+00	X	X	MEDIAN	20		
ECL-361	1147+00		X	NB DITCH	50		
ECL-362	1150+50		X	NB DITCH	20		
ECL-363	1151+25		X	NB DITCH	20		
ECL-364	1152+50	X	X	MEDIAN	30		
ECL-365	1152+75	X		SB DITCH	20		
ECL-366	1153+50	X		SB DITCH	20		
ECL-367	1152+50		X	NB DITCH	20		
ECL-368	1154+00		X	NB DITCH	20		
ECL-369	1154+50	X	X	MEDIAN	30		
ECL-370	1156+00	X		SB DITCH	20		
ECL-371	1156+75	X		SB DITCH	20		
ECL-372	1168+00	X	X	MEDIAN	20		
ECL-373	1182+50	X	X	MEDIAN	20		
ECL-374	1184+00	X	X	MEDIAN	20		
ECL-375	1191+50		X	NB DITCH	20		
ECL-376	1192+25		X	NB DITCH	20		
ECL-377	1191+00	X	X	MEDIAN	20		
ECL-378	1191+50	X	X	MEDIAN	20		
ECL-379	1191+50	X		SB DITCH	20		
ECL-380	1192+25	X		SB DITCH	20		
ECL-381	1194+50		X	NB DITCH	20		
ECL-382	1195+00		X	NB DITCH	20		
ECL-383	1194+50	X	X	MEDIAN	20		
ECL-384	1195+00	X	X	MEDIAN	20		
ECL-385	1194+00	X		SB DITCH	20		
ECL-386	1194+75	X		SB DITCH	20		
ECL-387	1199+00	X	X	MEDIAN	20		
ECL-388	1200+25	X	X	MEDIAN	20		
ECL-389	1204+75		X	NB DITCH	30		
ECL-390	1205+50		X	NB DITCH	30		
ECL-391	1206+00	X	X	MEDIAN	20		
ECL-392	1206+00	X		SB DITCH	30		
ECL-393	1206+75	X		SB DITCH	30		
ECL-394	1208+50		X	NB DITCH	30		
ECL-395	1209+00		X	NB DITCH	30		
ECL-396	1210+00	X	X	MEDIAN	20		
ECL-397	1208+75	X		SB DITCH	30		
ECL-398	1209+50	X		SB DITCH	30		
ECL-399	1214+00	X	X	MEDIAN	20		
ECL-400	1224+50	X		SB DITCH	50		
ECL-401	1227+00	X	X	MEDIAN	20		
				SUBTOTAL: US 84	1670		
				REPLACEMENT	835		
				CSJ-TOTAL US 84:	2505		

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 SUMMARY
(U.S. 84 SOUTH)

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		188

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SUMMARY OF EROSION CONTROL LOGS - US 87

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0068-03-034 (LYNN COUNTY)							
ECL-402	1+00	X	X	MEDIAN	20		
ECL-403	9+50	X	X	MEDIAN	20		
ECL-404	11+00	X	X	MEDIAN	20		
ECL-405	28+75	X	X	MEDIAN	20		
ECL-406	44+50	X	X	MEDIAN	20		
ECL-407	46+25	X	X	MEDIAN	20		
ECL-408	49+25		X	NB DITCH	80		
ECL-409	55+50	X	X	MEDIAN	20		
ECL-410	64+50	X	X	MEDIAN	20		
ECL-411	66+00	X	X	MEDIAN	20		
ECL-412	80+50	X	X	MEDIAN	20		
ECL-413	82+00	X	X	MEDIAN	20		
ECL-414	91+50	X	X	MEDIAN	20		
ECL-415	101+00	X	X	MEDIAN	20		
ECL-416	102+50	X	X	MEDIAN	20		
ECL-417	117+50	X	X	MEDIAN	20		
ECL-418	122+25		X	NB DITCH	50		
ECL-419	133+00	X	X	MEDIAN	20		
ECL-420	134+50	X	X	MEDIAN	20		
ECL-421	148+50	X	X	MEDIAN	20		
ECL-422	150+00	X	X	MEDIAN	20		
ECL-423	173+00	X	X	MEDIAN	20		
ECL-424	196+50	X	X	MEDIAN	20		
ECL-425	198+25	X	X	MEDIAN	20		
ECL-426	214+00	X	X	MEDIAN	20		
ECL-427	223+00	X	X	MEDIAN	20		
ECL-428	224+75	X	X	MEDIAN	20		
ECL-429	225+50		X	NB DITCH	50		
ECL-430	226+75	X	X	MEDIAN	20		
ECL-431	228+25	X	X	MEDIAN	20		
ECL-432	231+00	X	X	MEDIAN	20		
ECL-433	233+25	X		SB DITCH	30		
ECL-434	240+25	X	X	MEDIAN	20		
ECL-435	249+50	X	X	MEDIAN	20		
ECL-436	251+25	X	X	MEDIAN	20		
ECL-437	276+75	X	X	MEDIAN	20		
ECL-438	277+75		X	NB DITCH	70		
ECL-439	302+25	X	X	MEDIAN	20		
ECL-440	304+00	X	X	MEDIAN	20		
ECL-441	307+75	X		SB DITCH	40		
ECL-442	328+50	X		SB DITCH	80		
ECL-443	329+50	X	X	MEDIAN	20		
ECL-444	355+25	X	X	MEDIAN	20		
ECL-445	356+75	X		SB DITCH	40		
ECL-446	370+75	X		SB DITCH	60		
ECL-447	377+75	X		SB DITCH	40		
ECL-448	382+25	X	X	MEDIAN	20		
ECL-449	393+75	X		SB DITCH	60		
ECL-450	408+00	X	X	MEDIAN	20		
				SUBTOTAL US 87:	1360		
				REPLACEMENT	680		
				CSJ-TOTAL US 87:	2040		

SUMMARY OF EROSION CONTROL LOGS - US 87

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0068-03-034 (LYNN COUNTY)							
ECL-451	409+50	X	X	MEDIAN	20		
ECL-452	435+25	X	X	MEDIAN	20		
ECL-453	461+00	X	X	MEDIAN	20		
ECL-454	462+50	X	X	MEDIAN	20		
ECL-455	475+00	X	X	MEDIAN	20		
ECL-456	487+50	X	X	MEDIAN	20		
ECL-457	489+00	X	X	MEDIAN	20		
ECL-458	501+25	X	X	MEDIAN	20		
ECL-459	513+25	X	X	MEDIAN	20		
ECL-460	516+75	X	X	MEDIAN	20		
ECL-461	531+75	X	X	MEDIAN	20		
ECL-462	538+00		X	NB DITCH	50		
ECL-463	545+50		X	NB DITCH	50		
ECL-464	547+00	X	X	MEDIAN	20		
ECL-465	548+25	X	X	MEDIAN	20		
ECL-466	556+00	X	X	MEDIAN	20		
ECL-467	560+00	X	X	MEDIAN	20		
ECL-468	561+00	X	X	MEDIAN	20		
ECL-469	562+75		X	NB DITCH	50		
ECL-470	562+75	X		SB DITCH	50		
ECL-471	563+00	X	X	MEDIAN	20		
ECL-472	564+00	X	X	MEDIAN	20		
ECL-473	565+50	X	X	MEDIAN	20		
ECL-474	574+75	X		SB DITCH	40		
ECL-475	592+75		X	NB DITCH	60		
ECL-476	593+50	X	X	MEDIAN	20		
ECL-477	621+25	X	X	MEDIAN	20		
ECL-478	622+50	X	X	MEDIAN	20		
ECL-479	637+00	X	X	MEDIAN	20		
ECL-480	643+50		X	NB DITCH	30		
ECL-481	651+25	X	X	MEDIAN	20		
ECL-482	652+50	X	X	MEDIAN	20		
ECL-483	658+00	X	X	MEDIAN	20		
ECL-484	659+25	X	X	MEDIAN	20		
ECL-485	661+00		X	NB DITCH	70		
ECL-486	661+00	X		SB DITCH	70		
ECL-487	662+00	X	X	MEDIAN	20		
ECL-488	663+50	X	X	MEDIAN	20		
ECL-489	677+25	X	X	MEDIAN	20		
ECL-490	696+00	X	X	MEDIAN	20		
ECL-491	697+50	X	X	MEDIAN	20		
ECL-492	707+50	X	X	MEDIAN	20		
ECL-493	709+00	X	X	MEDIAN	20		
ECL-494	723+00	X	X	MEDIAN	20		
ECL-495	737+00	X	X	MEDIAN	20		
				SUBTOTAL US 87:	1190		
				REPLACEMENT	595		
				CSJ-TOTAL US 87:	1785		

SUMMARY OF EROSION CONTROL LOGS - US 87

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0068-02-049 (LYNN COUNTY)							
ECL-496	741+00	X	X	MEDIAN	20		
ECL-497	752+00		X	MEDIAN	50		
ECL-498	752+00	X		MEDIAN	90		
ECL-499	766+25	X	X	MEDIAN	20		
ECL-500	789+75	X	X	MEDIAN	20		
ECL-501	795+50	X	X	MEDIAN	20		
ECL-502	812+50	X	X	MEDIAN	20		
ECL-503	822+50	X	X	MEDIAN	20		
ECL-504	823+50	X	X	MEDIAN	20		
ECL-505	824+50	X		SB DITCH	40		
ECL-506	825+25	X	X	MEDIAN	20		
ECL-507	827+00	X	X	MEDIAN	20		
ECL-508	832+00	X	X	MEDIAN	20		
				SUBTOTAL US 87:	380		
				REPLACEMENT	190		
				CSJ-TOTAL US 87:	570		

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 SUMMARY
(U.S. 87)

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		189

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SUMMARY OF SAND BAGS - US 87

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0068-03-034 (LYNN COUNTY)							
SB-40	49+00	X	X	MEDIAN	32		
SB-41	122+25	X	X	MEDIAN	34		
SB-42	233+25	X	X	MEDIAN	40		
SB-43	277+75	X	X	MEDIAN	36		
SB-44	307+75	X	X	MEDIAN	44		
SB-45	328+50	X	X	MEDIAN	70		
SB-46	356+75	X	X	MEDIAN	30		
SB-47	370+75	X	X	MEDIAN	42		
SB-48	377+75	X	X	MEDIAN	36		
SB-49	393+75	X	X	MEDIAN	40		
SB-50	428+50	X	X	MEDIAN	36		
SB-51	538+00	X	X	MEDIAN	46		
SB-52	545+50	X	X	MEDIAN	46		
SB-53	574+75	X	X	MEDIAN	36		
SB-54	592+75	X	X	MEDIAN	46		
SB-55	643+50	X	X	MEDIAN	40		
SB-56	738+75	X	X	MEDIAN	24		
SB-57	738+75	X		SB DITCH	32		
				SUBTOTAL US 87:	710		
				REPLACEMENT	355		
				CSJ-TOTAL US 87:	1065		

SUMMARY OF SAND BAGS - US 87

BMP NUMBER	APPROX. STATION	RT	LT	DESCRIPTION	INSTALL QTY (LF)	DATE INSTALLED	DATE REMOVED
0068-02-049 (LYNN COUNTY)							
SB-58	752+00		X	NB DITCH	70		
SB-59	752+00	X	X	MEDIAN	50		
SB-60	752+00	X		SB DITCH	48		
SB-61	779+00		X	NB DITCH	56		
SB-62	782+00		X	NB DITCH	56		
				SUBTOTAL US 87:	280		
				REPLACEMENT	140		
				CSJ-TOTAL US 87:	420		

STATE OF TEXAS
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US 84, ETC.

SWP3 SUMMARY
(U.S. 87)

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		190

DATE: 2/2/2024 3:16:14 PM
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SUMMARY									
CSJ	506-6020	506-6024	506-6038	506-6039	506-6042	506-6043	506-6035	730-6107	734-6002
	CONST. EXITS (INSTALL) (TY 1)	CONST. EXITS (REMOVE) (TY 1)	SEDIMENT CONTROL FENCE (INSTALL)	SEDIMENT CONTROL FENCE (REMOVE)	EROSION CONTROL LOG (INSTALL)	EROSION CONTROL LOG (REMOVE)	SANDBAGS (INSTALL)	FULL-WIDTH MOWING	LITTER REMOVAL
	SY	SY	LF	LF	LF	LF	EACH	CYC	CYC
0053-01-136	200	200			60	30		2	2
0053-03-022	200	200			450	225	300	2	2
0053-04-045	200	200			3675	1838	969	2	2
0053-05-053	200	200	1218	609	6270	3135	1140	2	2
0053-06-032	200	200	1374	627	5730	2865	420	2	2
0068-03-034	200	200			3825	1913	1065	2	2
0068-02-049	200	200			570	285	420	2	2
TOTAL:	1400	1400	2592	1236	20580	10291	4314	14	14

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US 84, ETC.

SWP3 SUMMARY

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		191

DATE: 2/2/2024 3:16:34 PM
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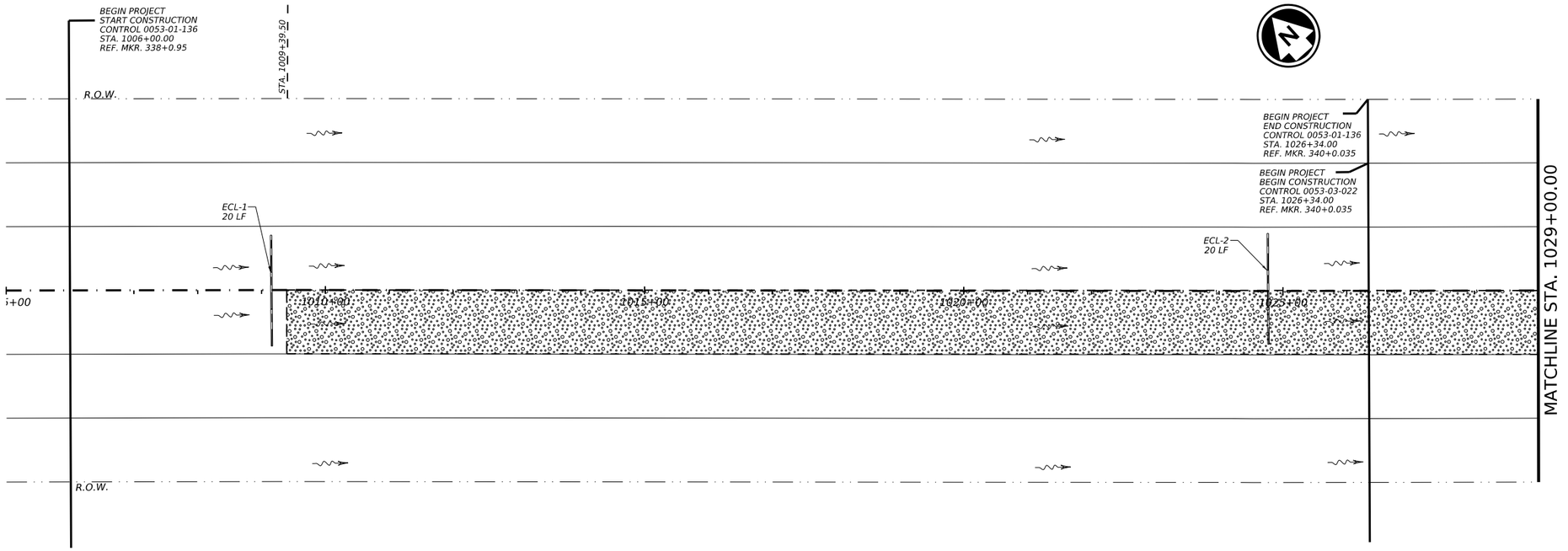

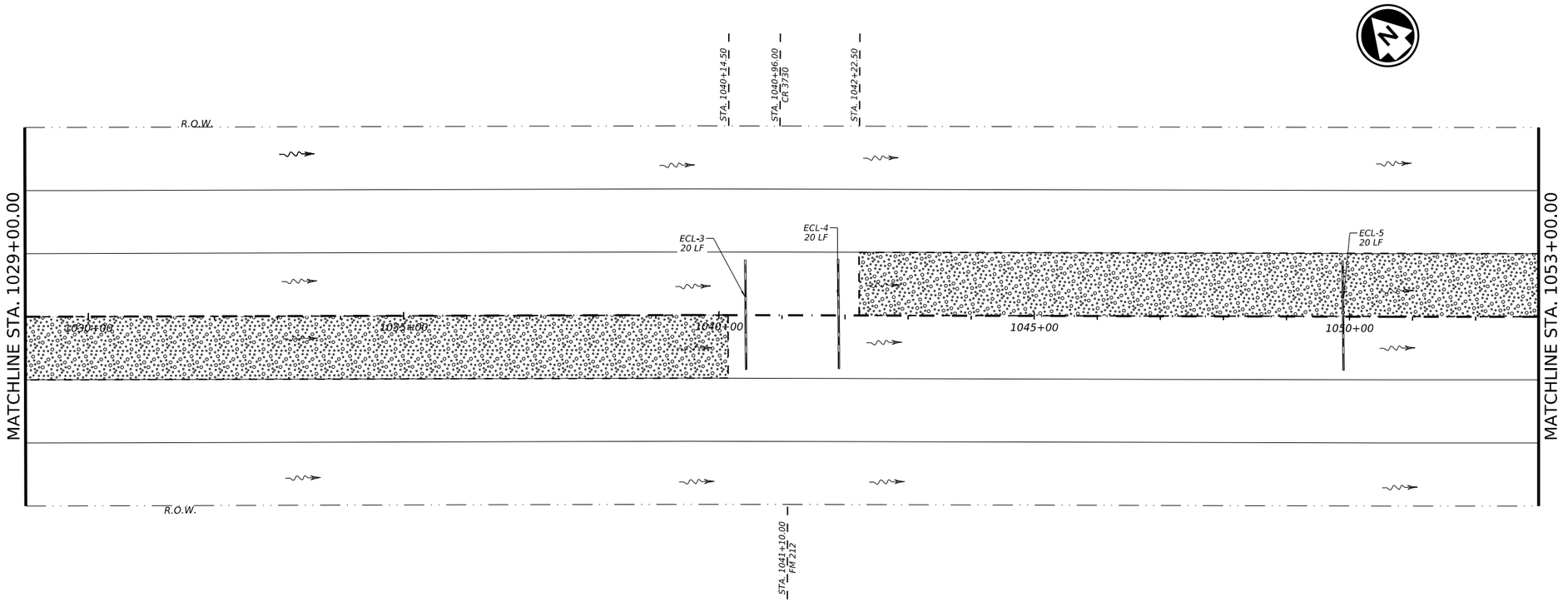

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

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US 84, ETC.

SWP3 LAYOUT
(North US 84)
SCALE: 1"=200'

SHEET 1 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		192

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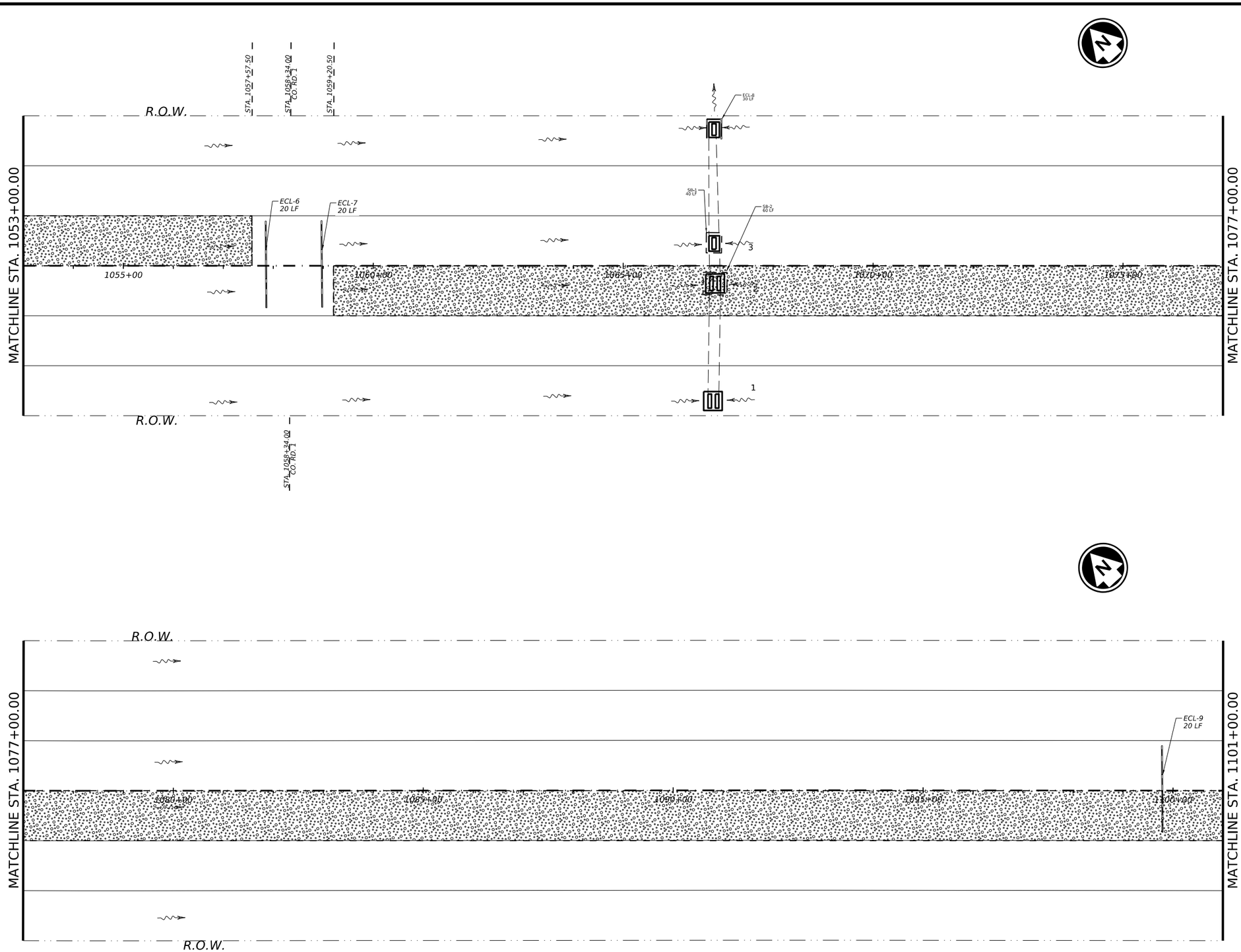

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE:1"=200'

SHEET 2 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		193

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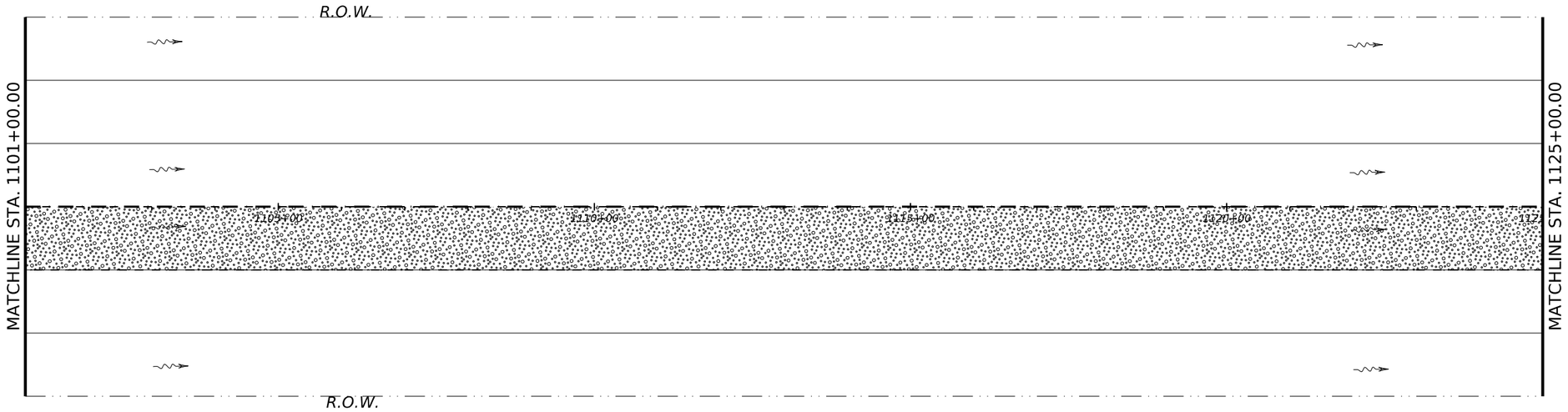

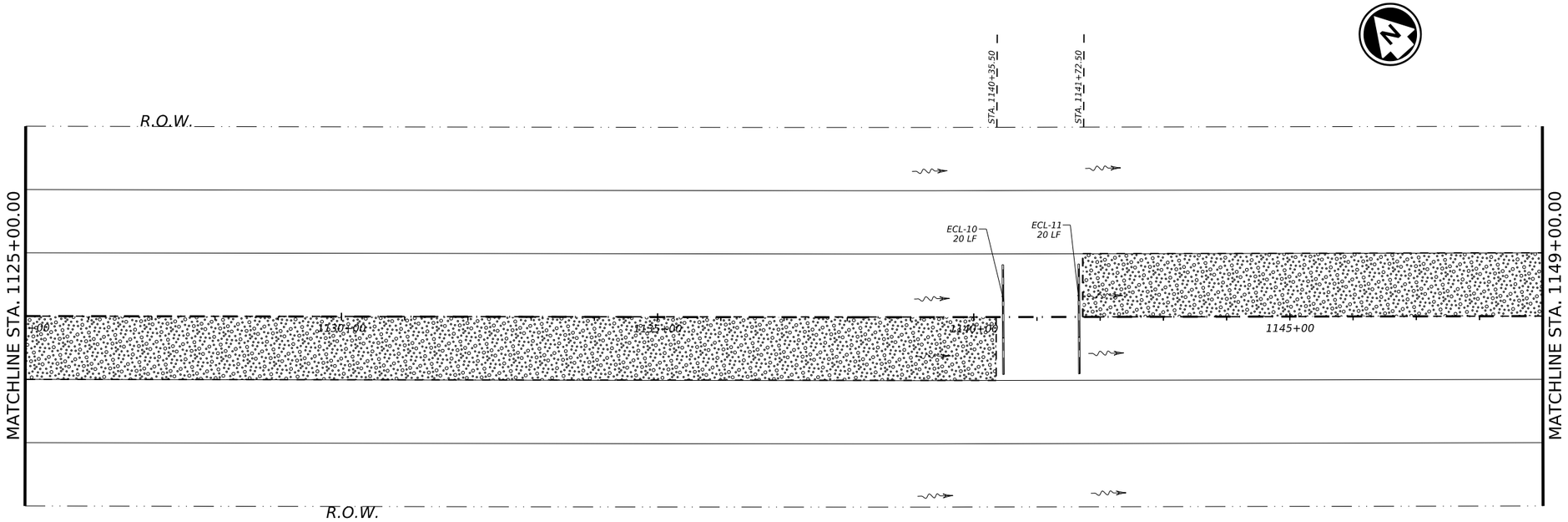

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

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US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 3 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		194

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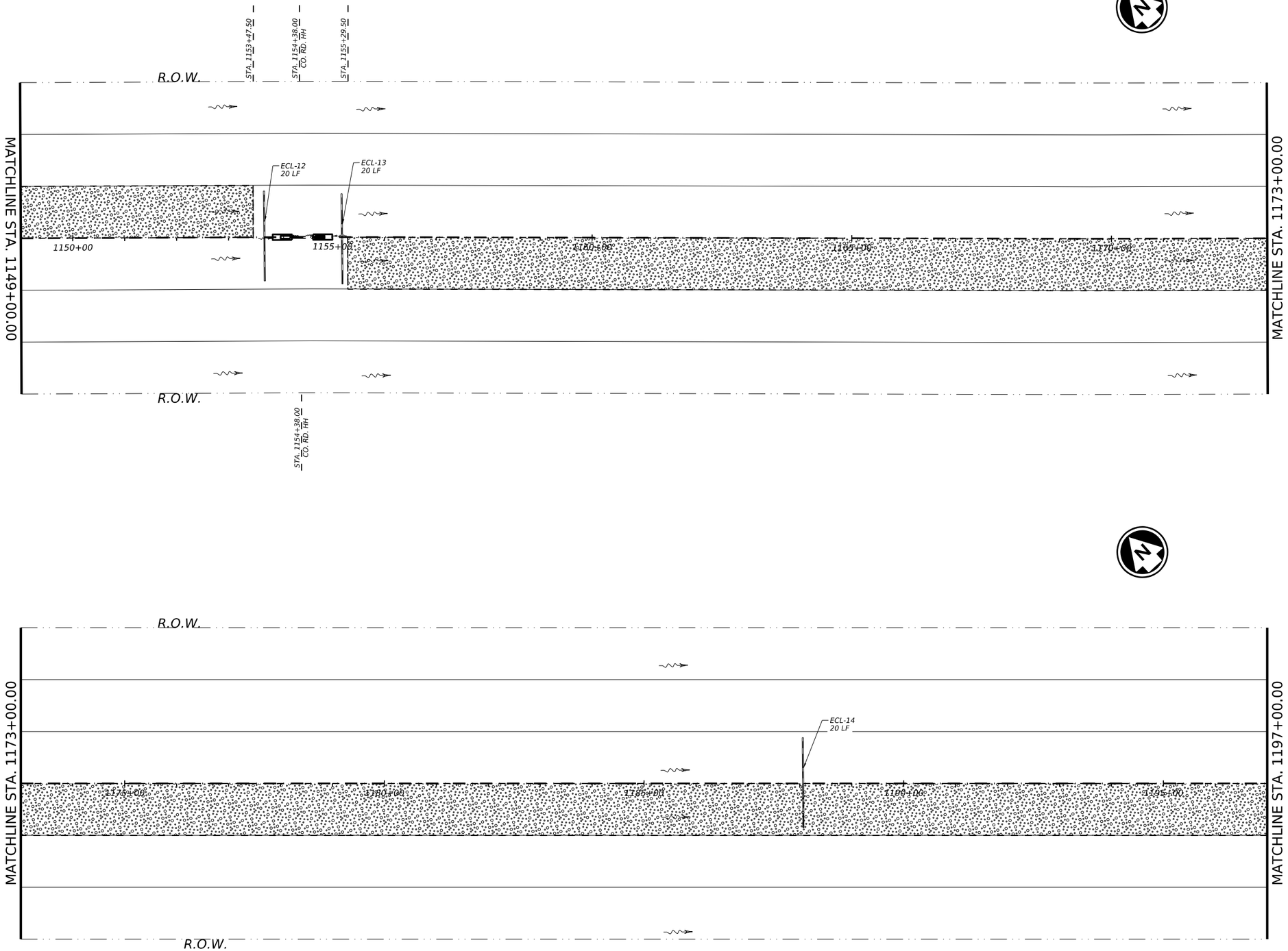

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

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US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 4 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		195

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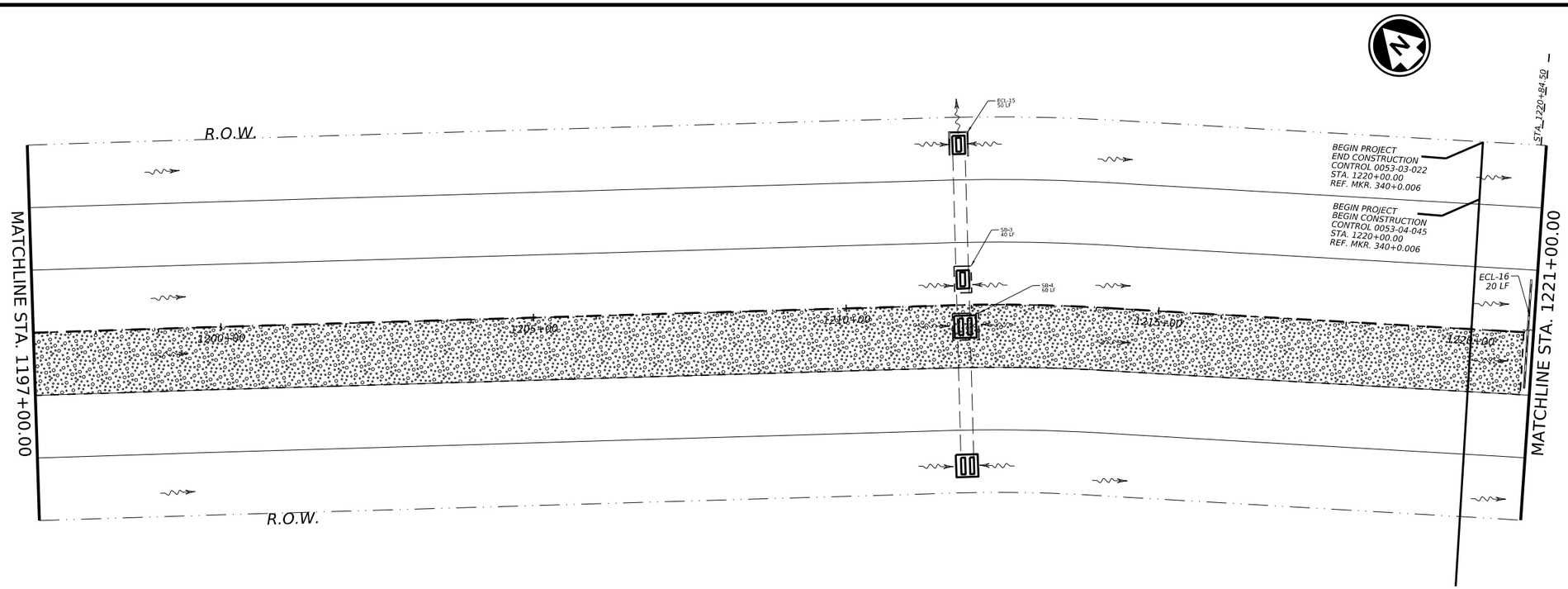

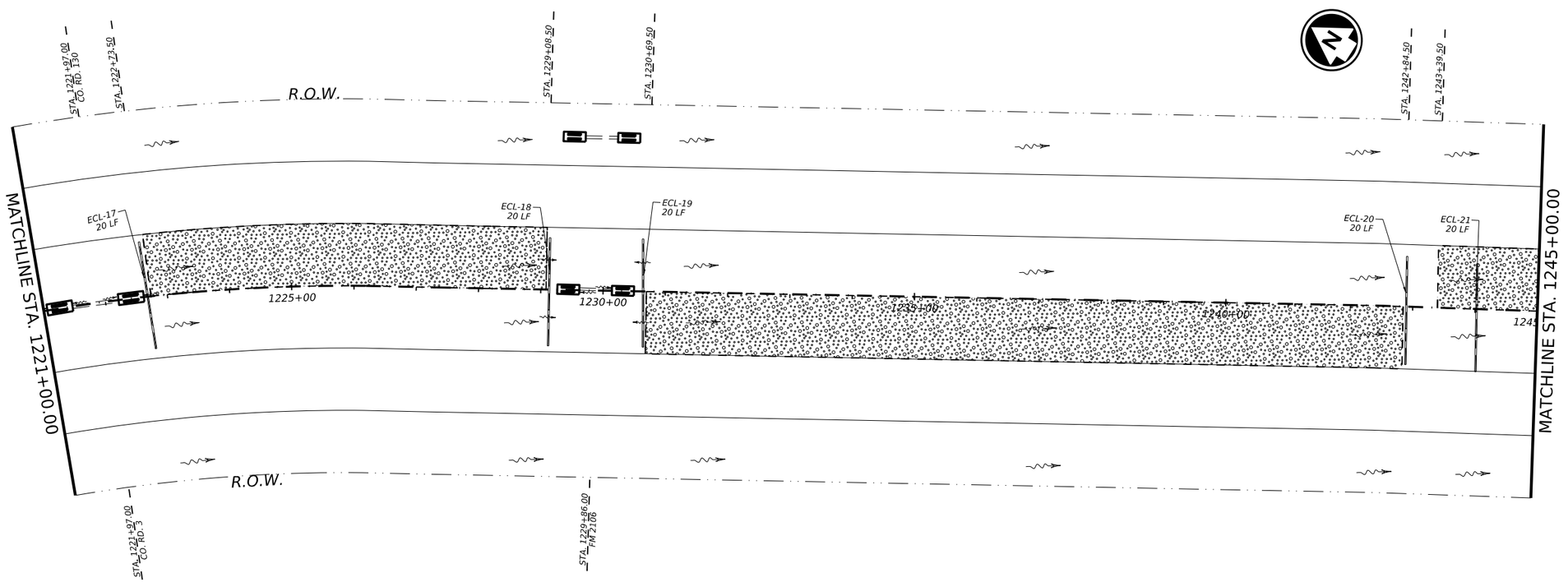

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 5 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		196

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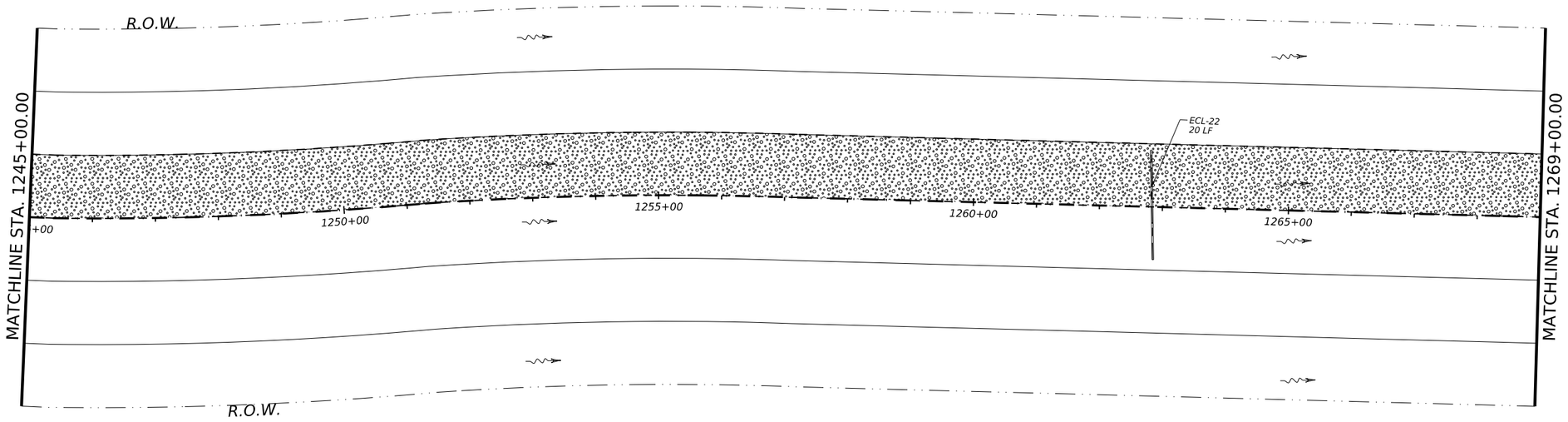
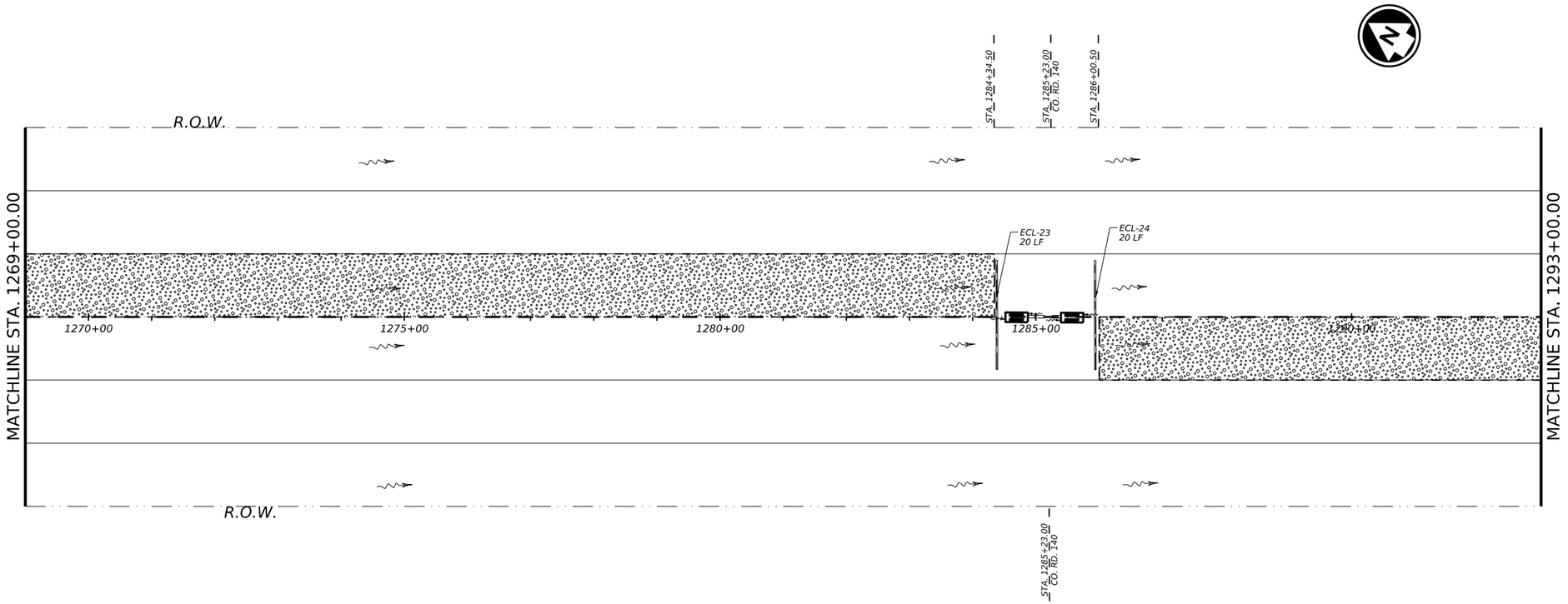


LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA



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Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 6 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		197

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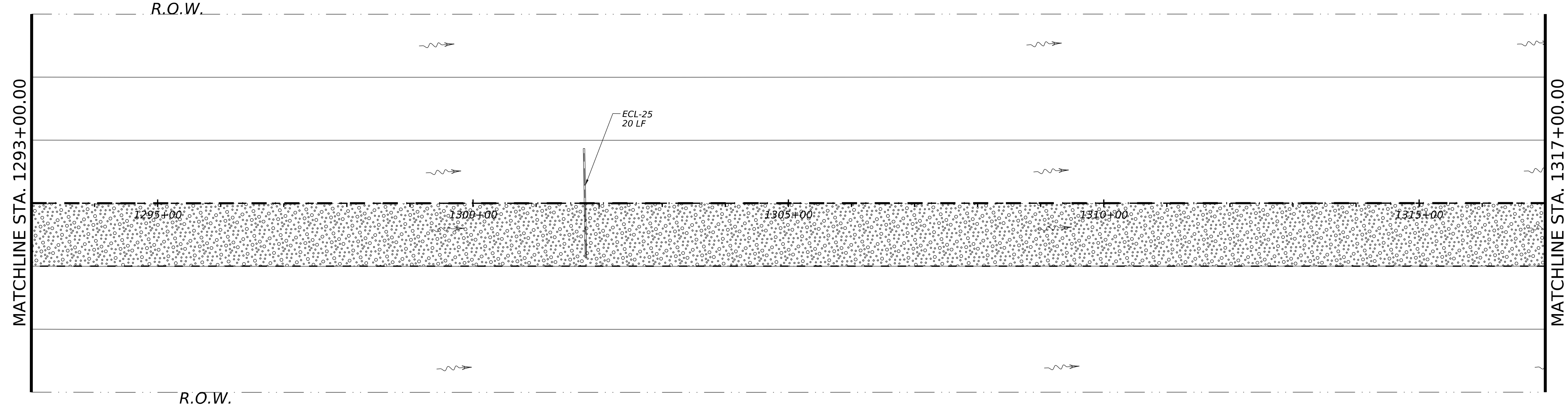
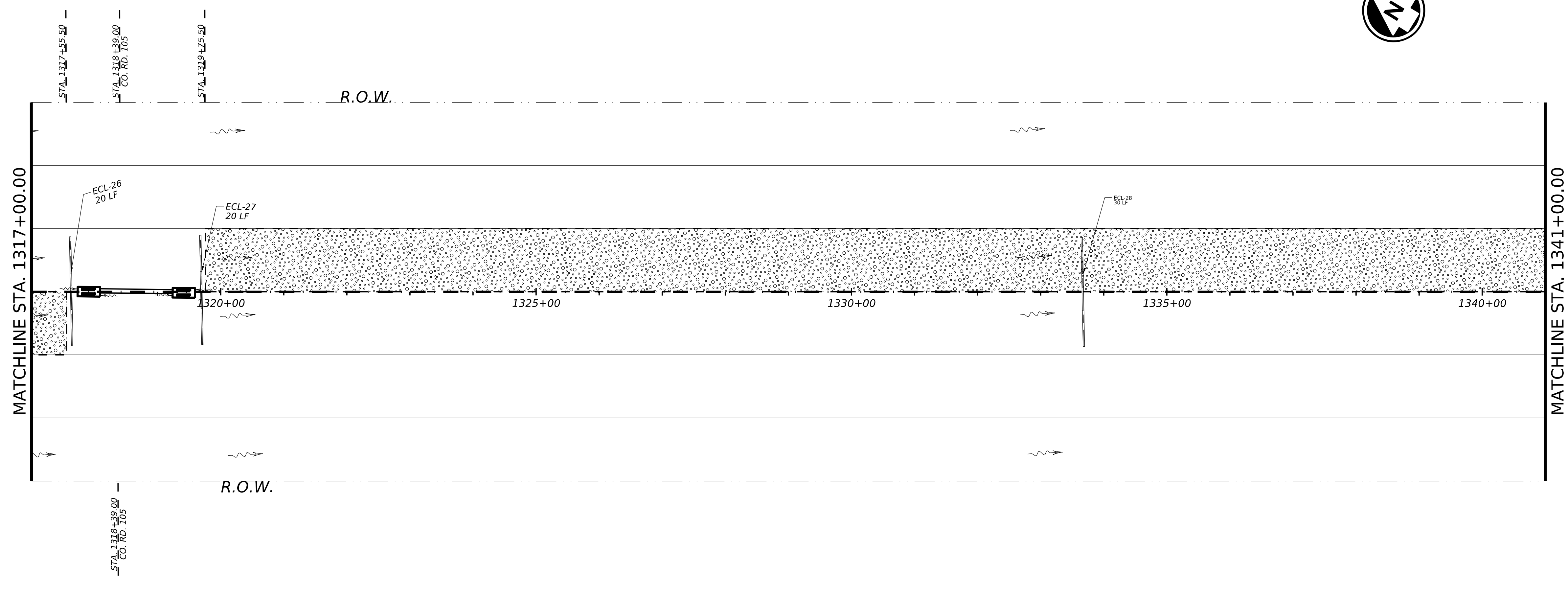
LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA





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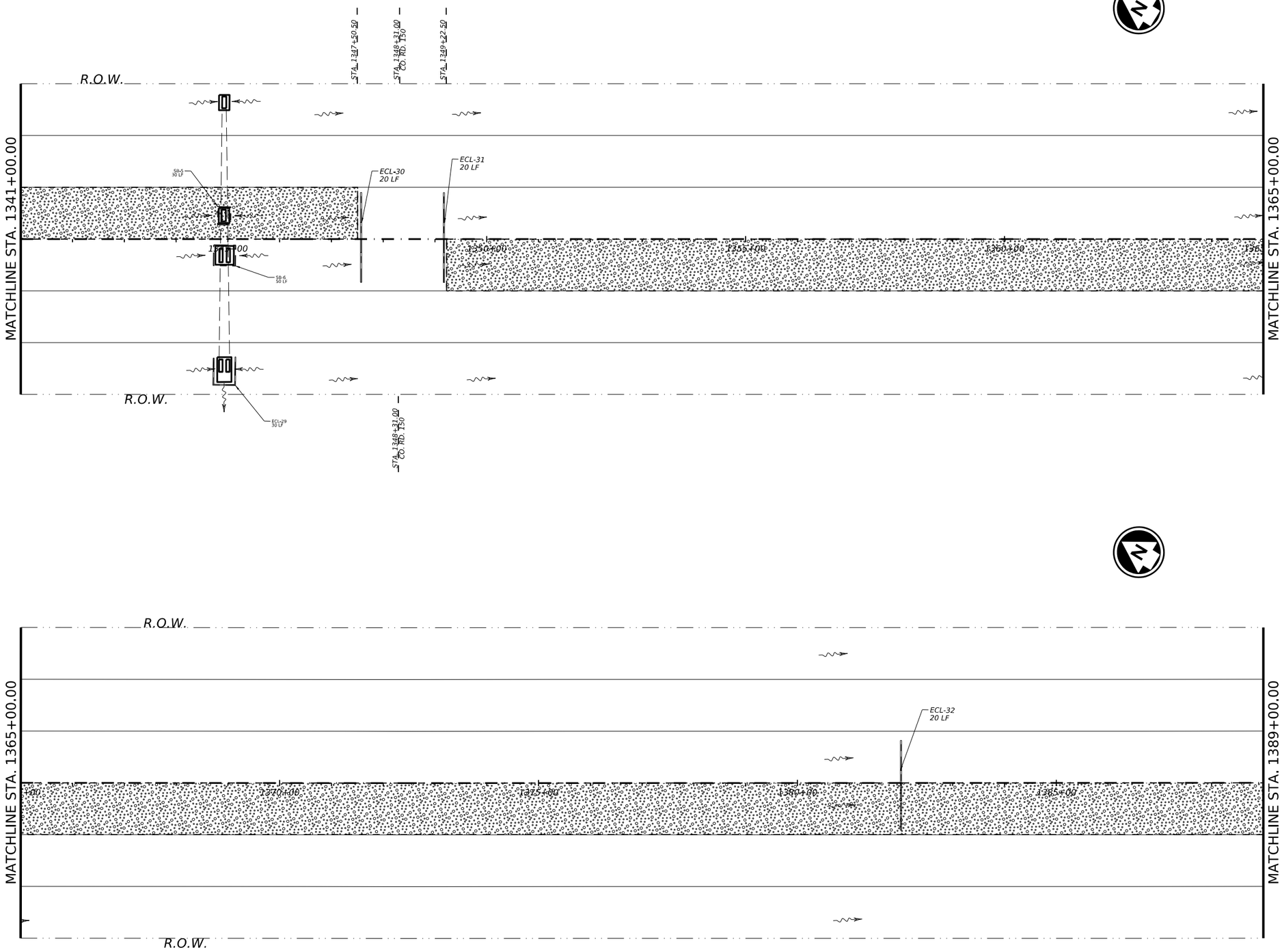
Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1''=200'

SHEET 7 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		198



LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 8 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		199

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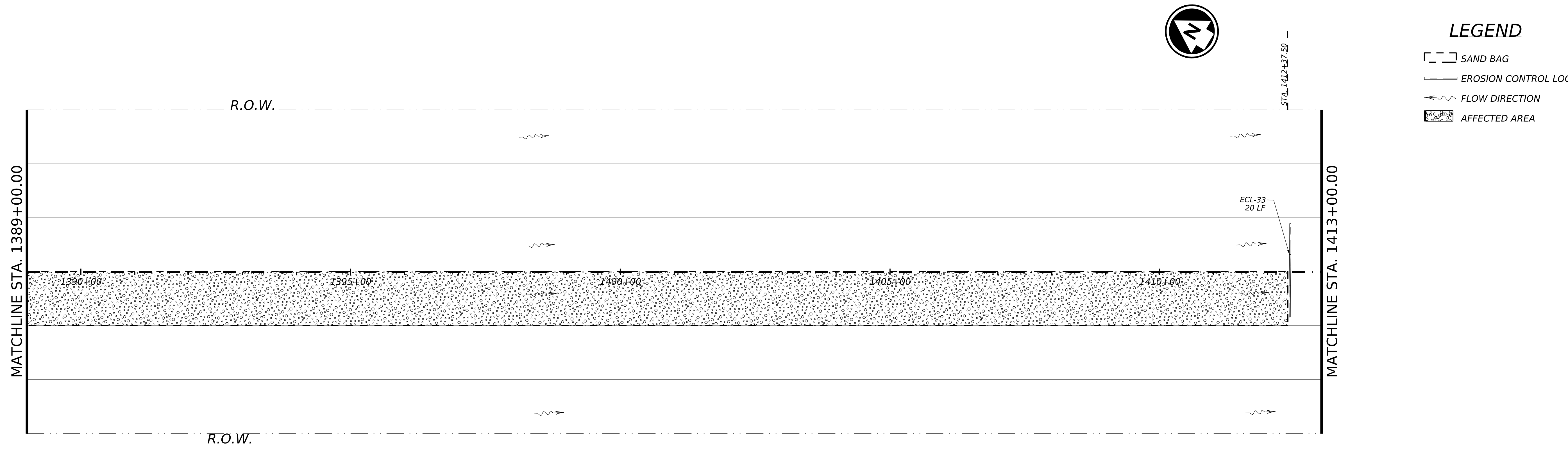

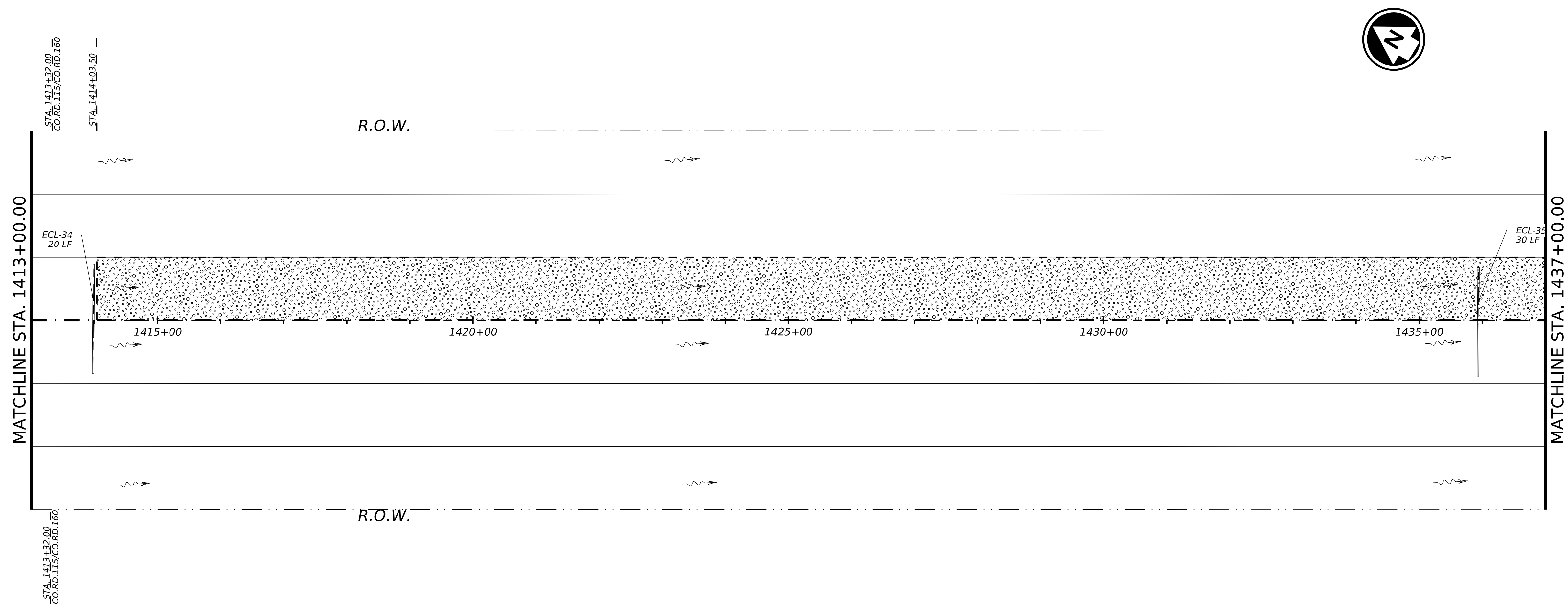

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Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1''=200'

SHEET 9 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		200

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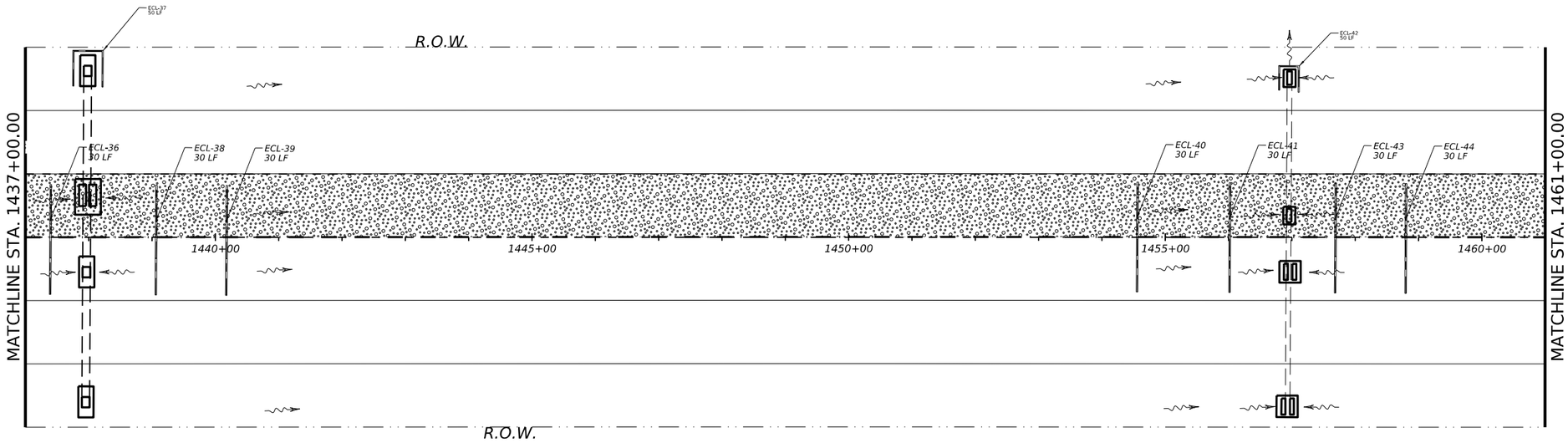

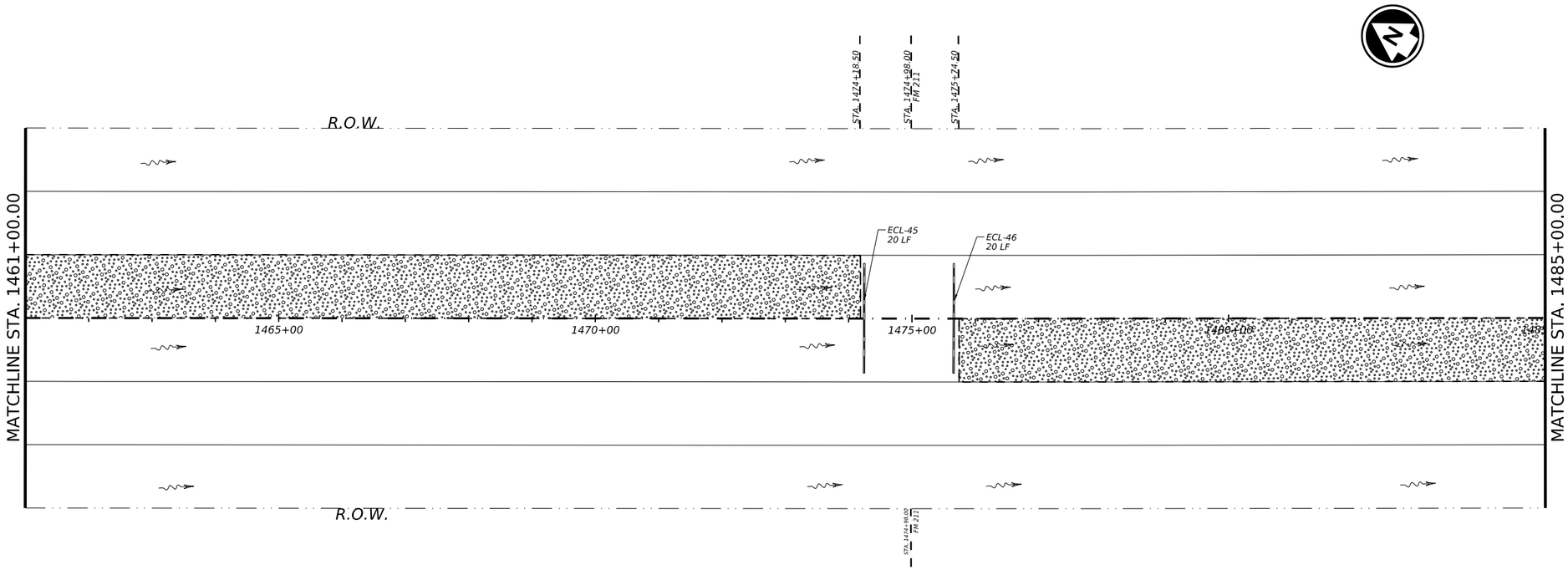

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 10 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		201

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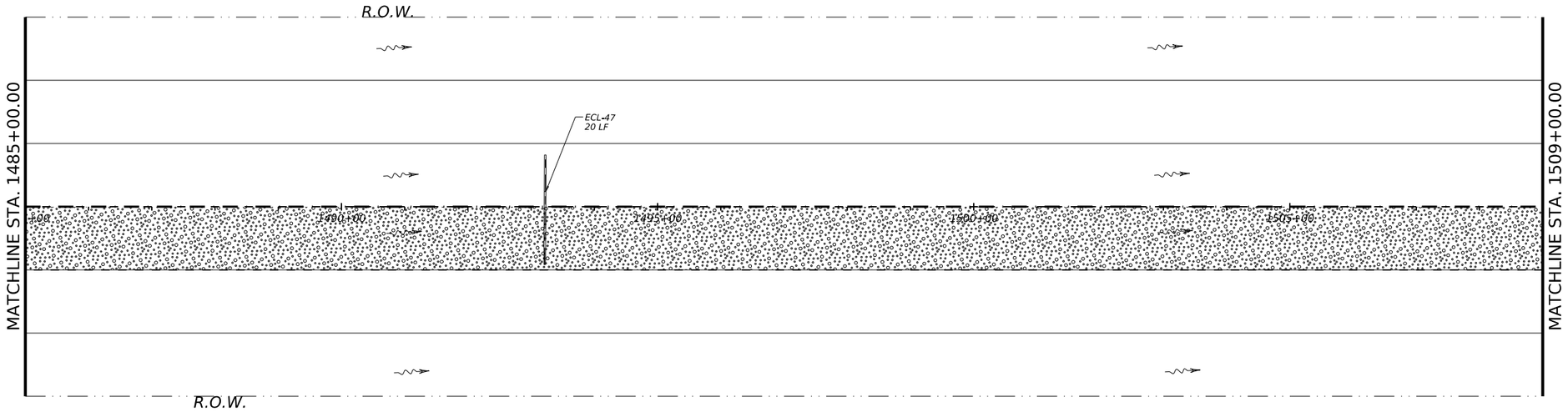

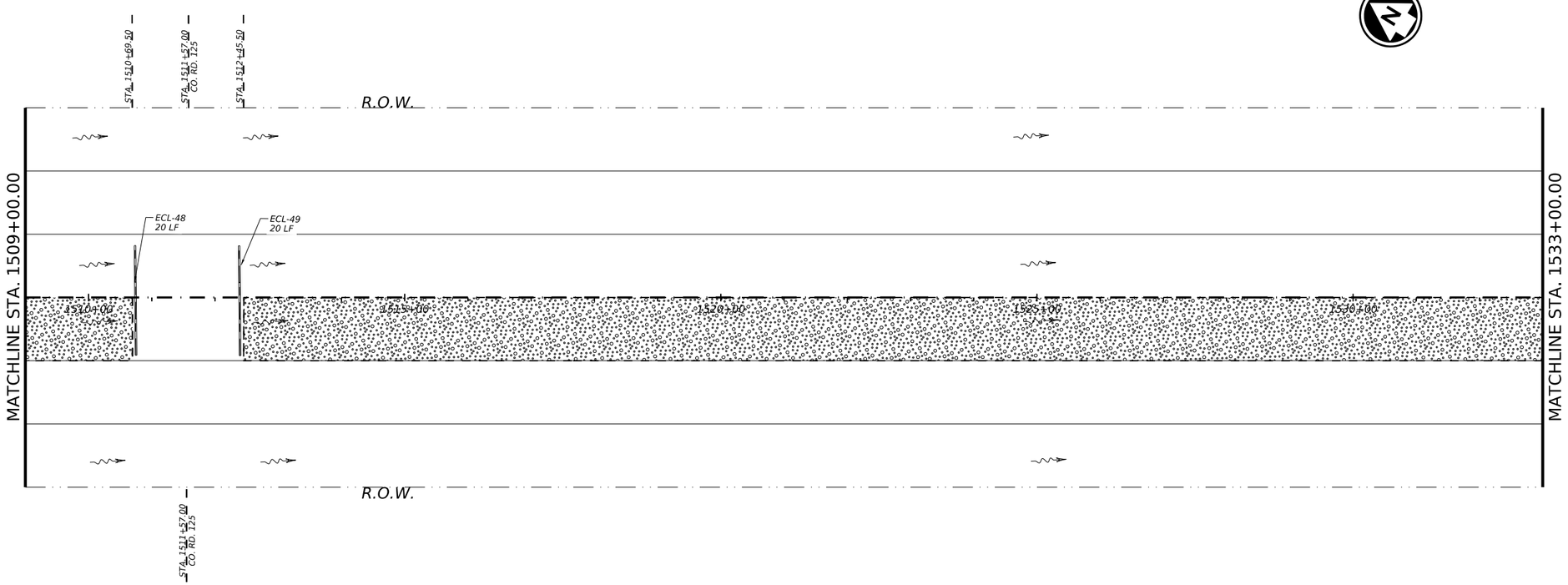

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"-200'

SHEET 11 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		202

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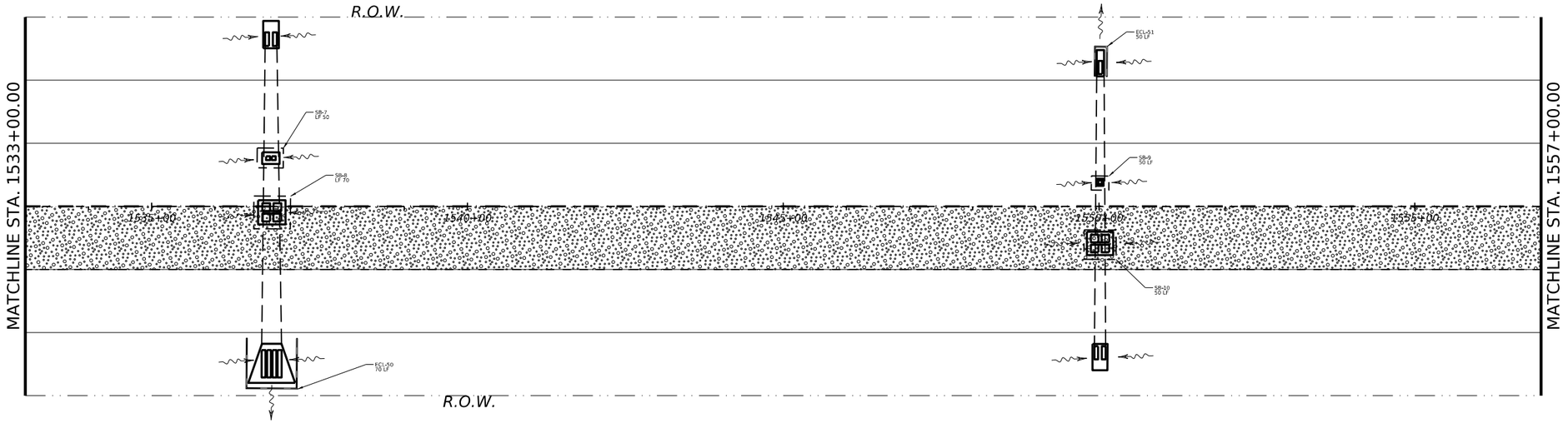

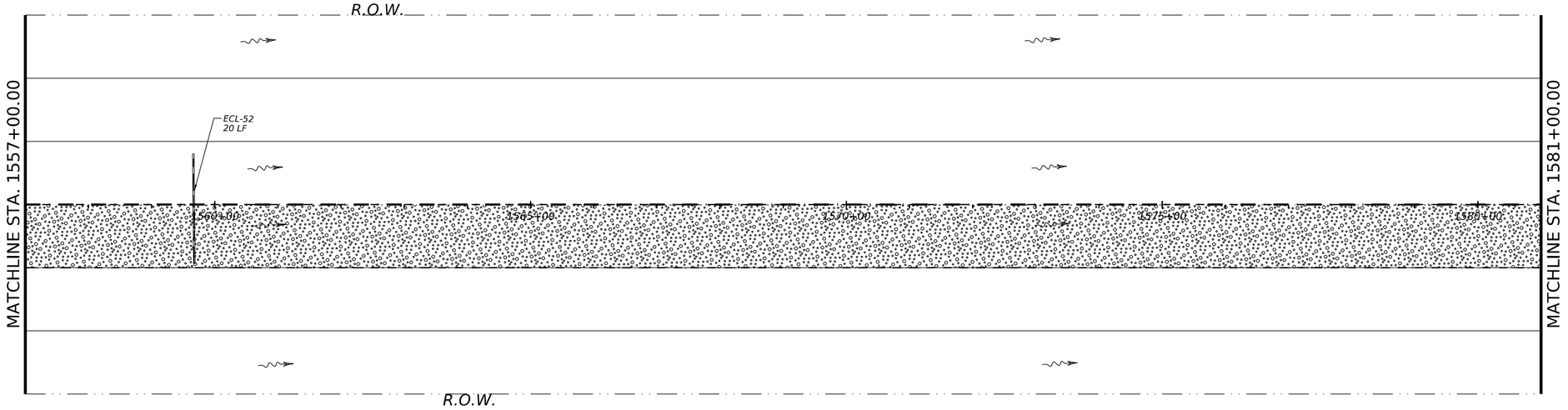

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 12 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		203

DATE: 2/2/2024 3:32:38 PM
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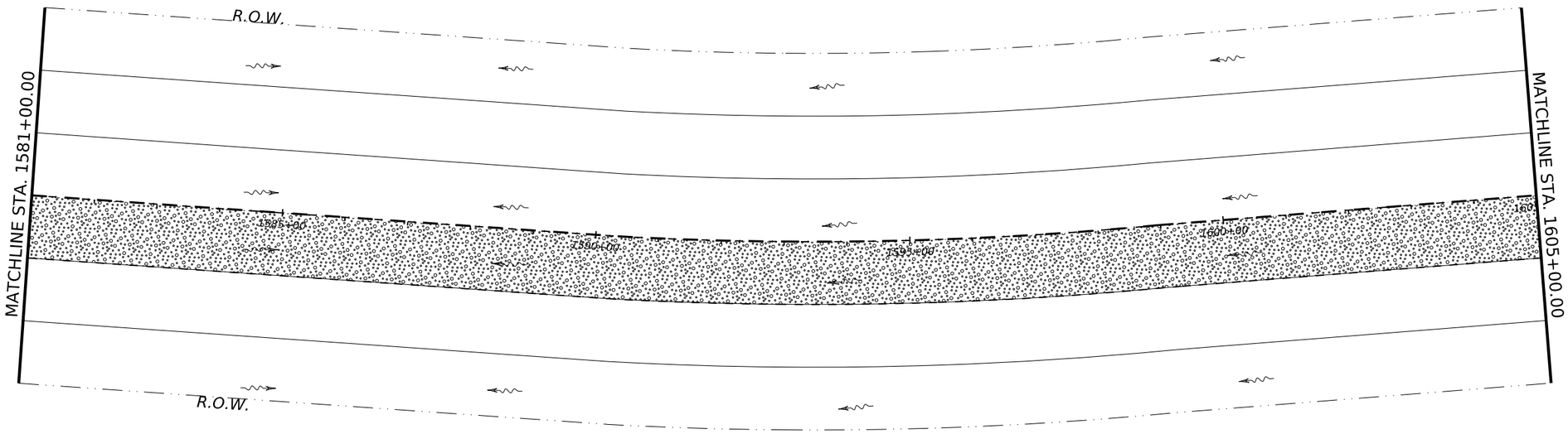

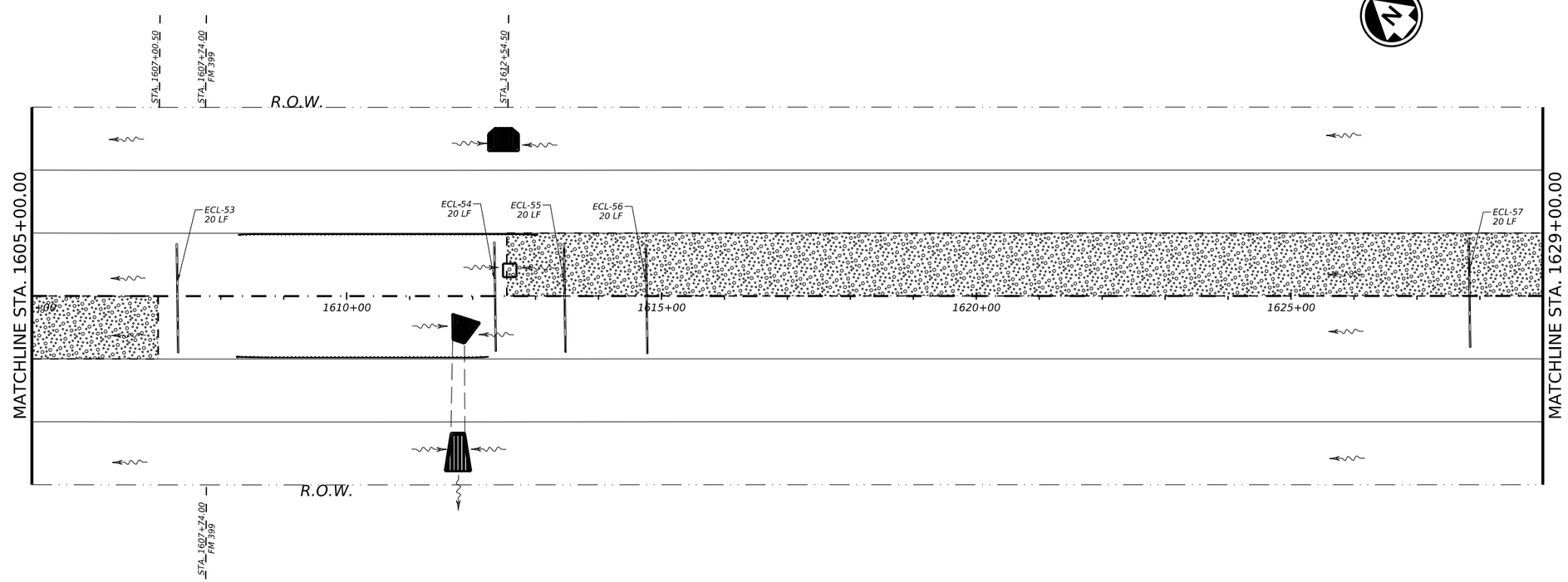

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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LICENSED
PROFESSIONAL ENGINEER

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1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 13 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		204

DATE: 2/2/2024 3:33:06 PM
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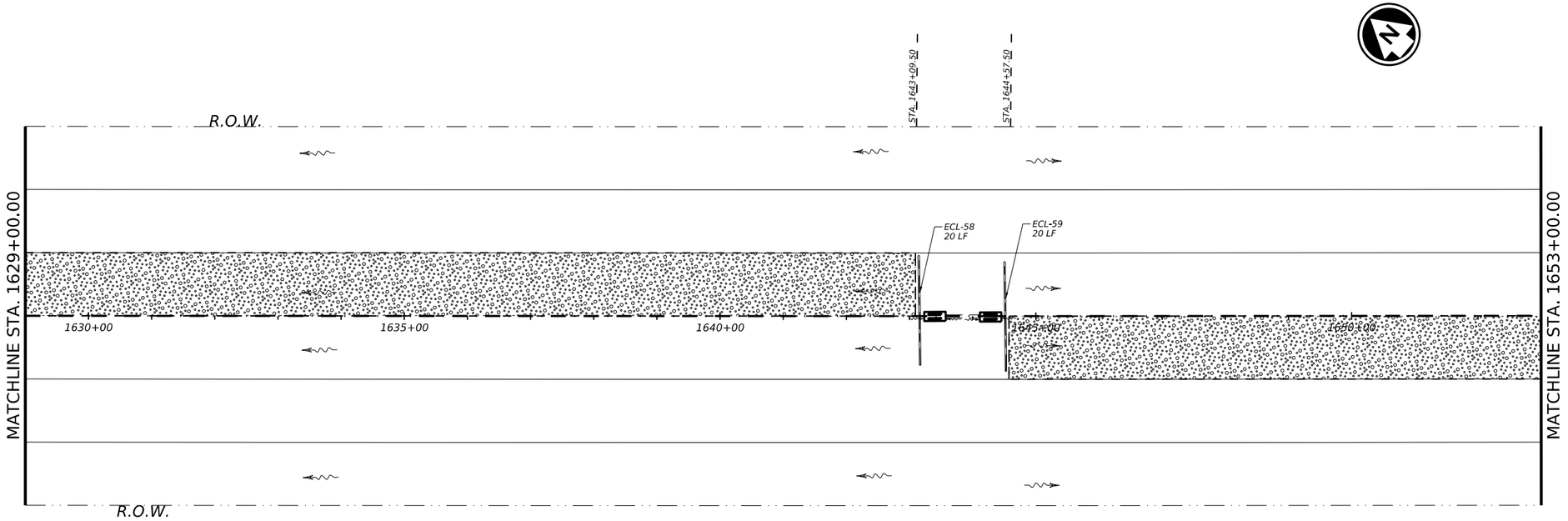

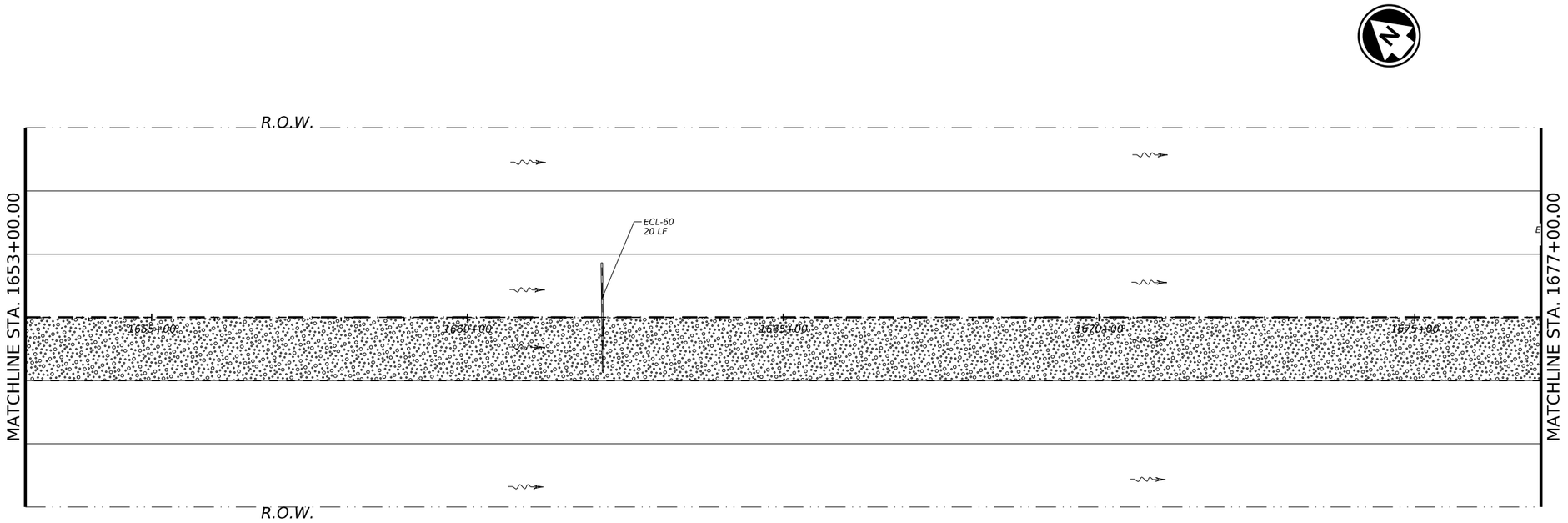

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

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Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 14 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		205

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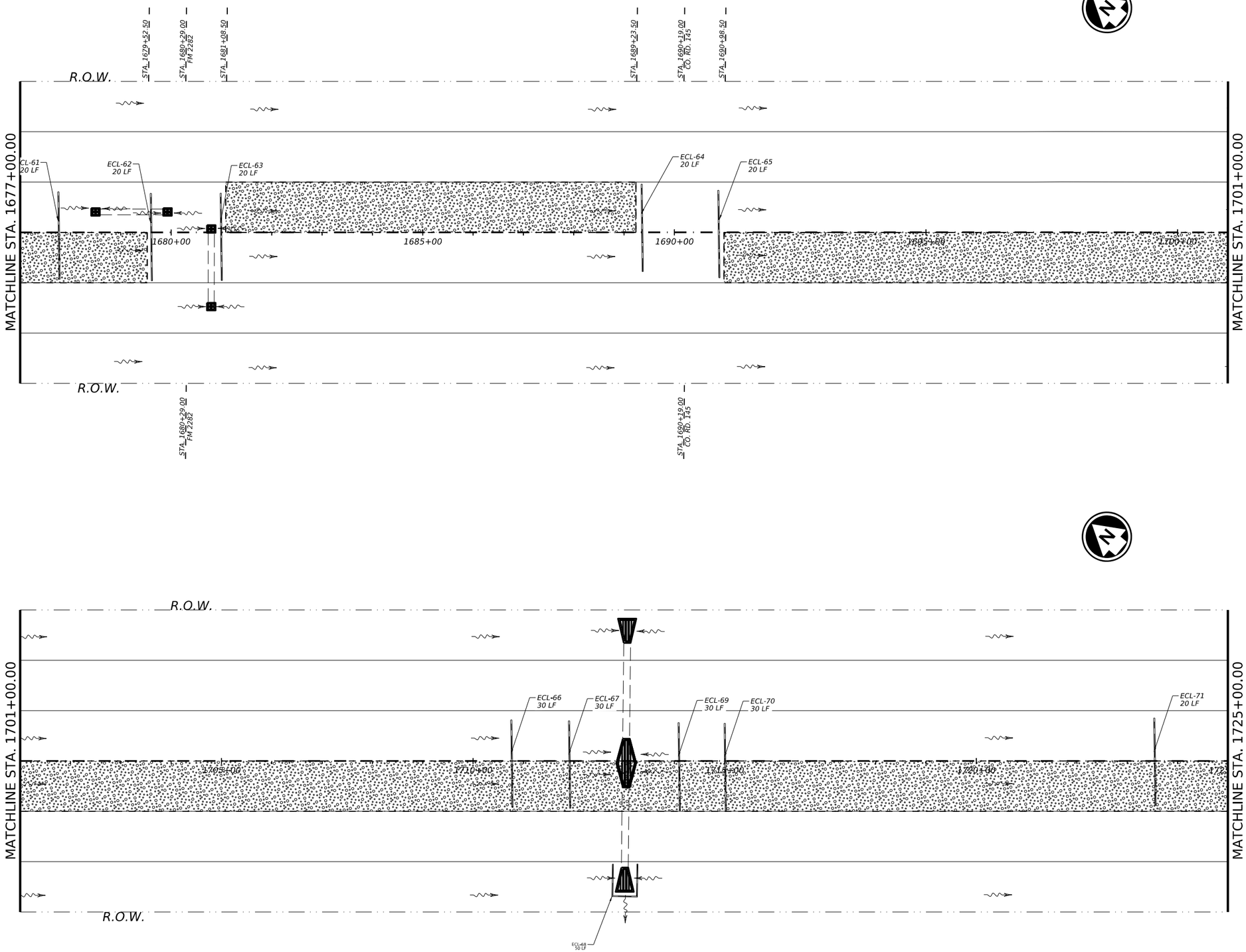

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

SHELLEY C. HARRIS
99197
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

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Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT (US 84 North)
SCALE: 1"=200'

SHEET 15 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		206

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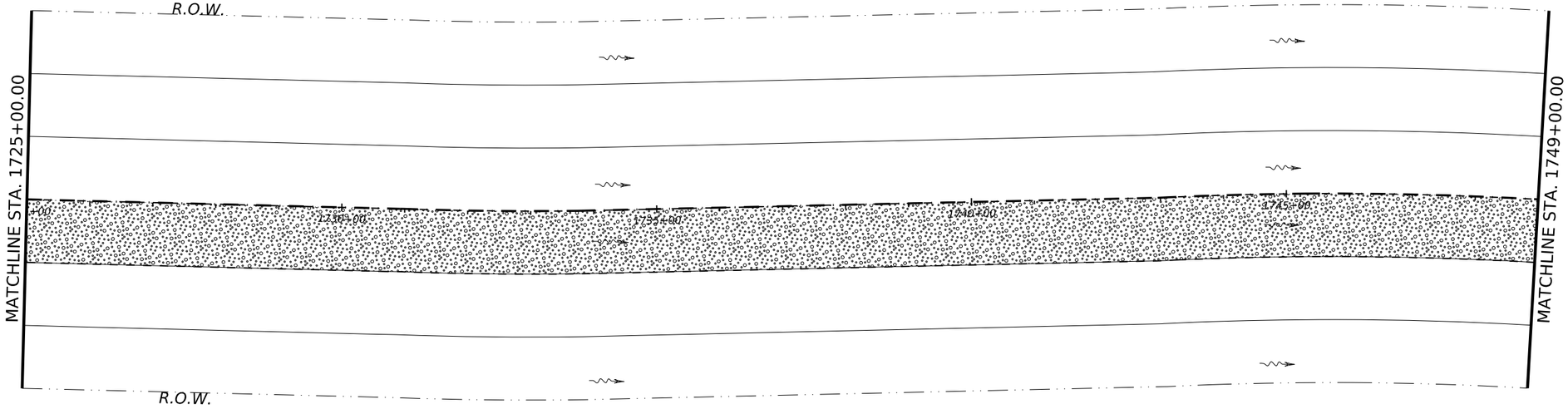
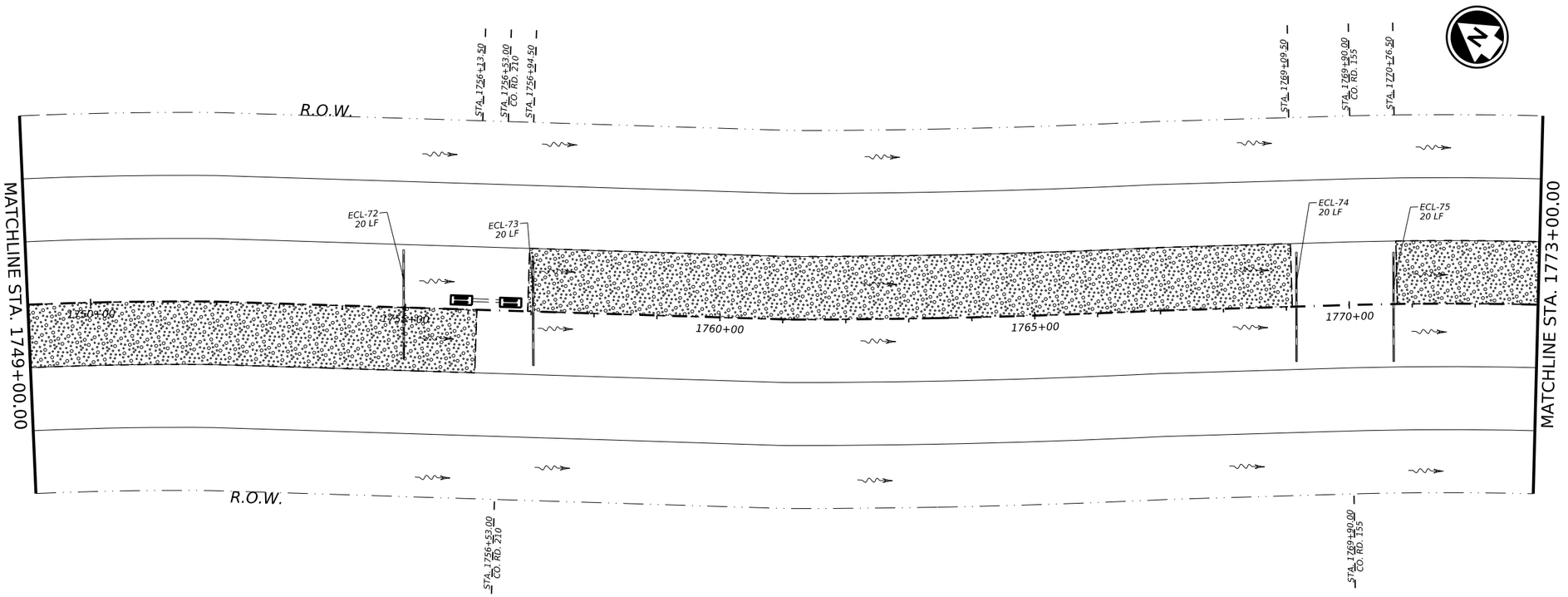


LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA



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Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 16 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		207

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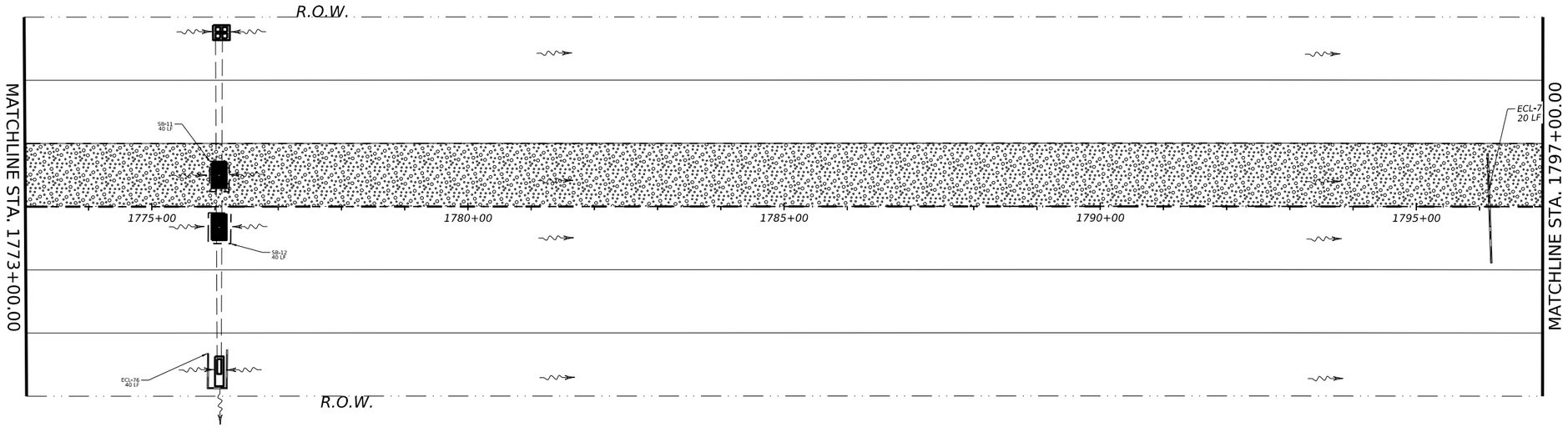

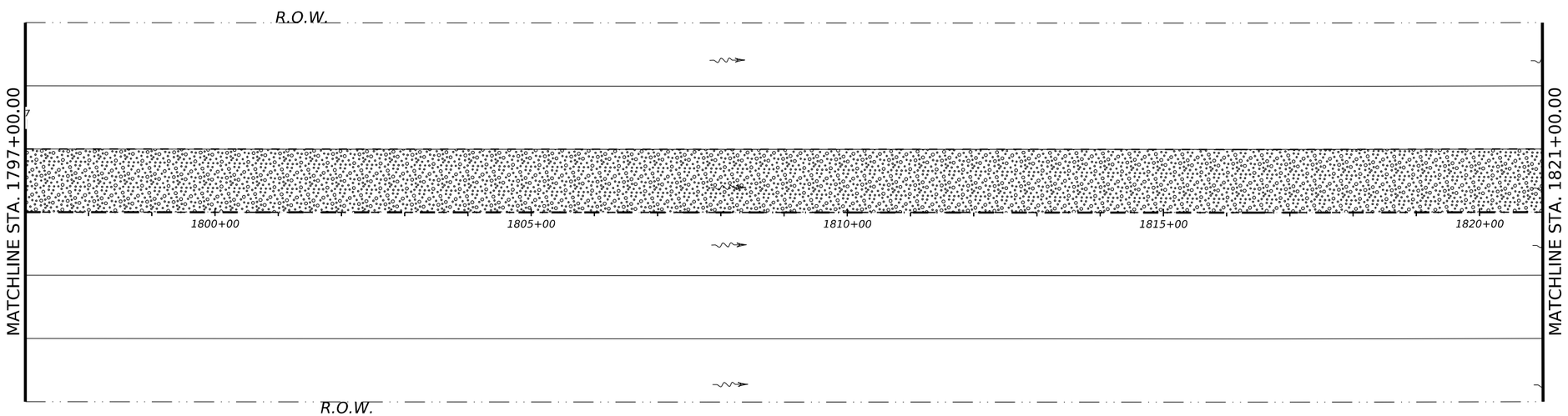

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 17 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		208

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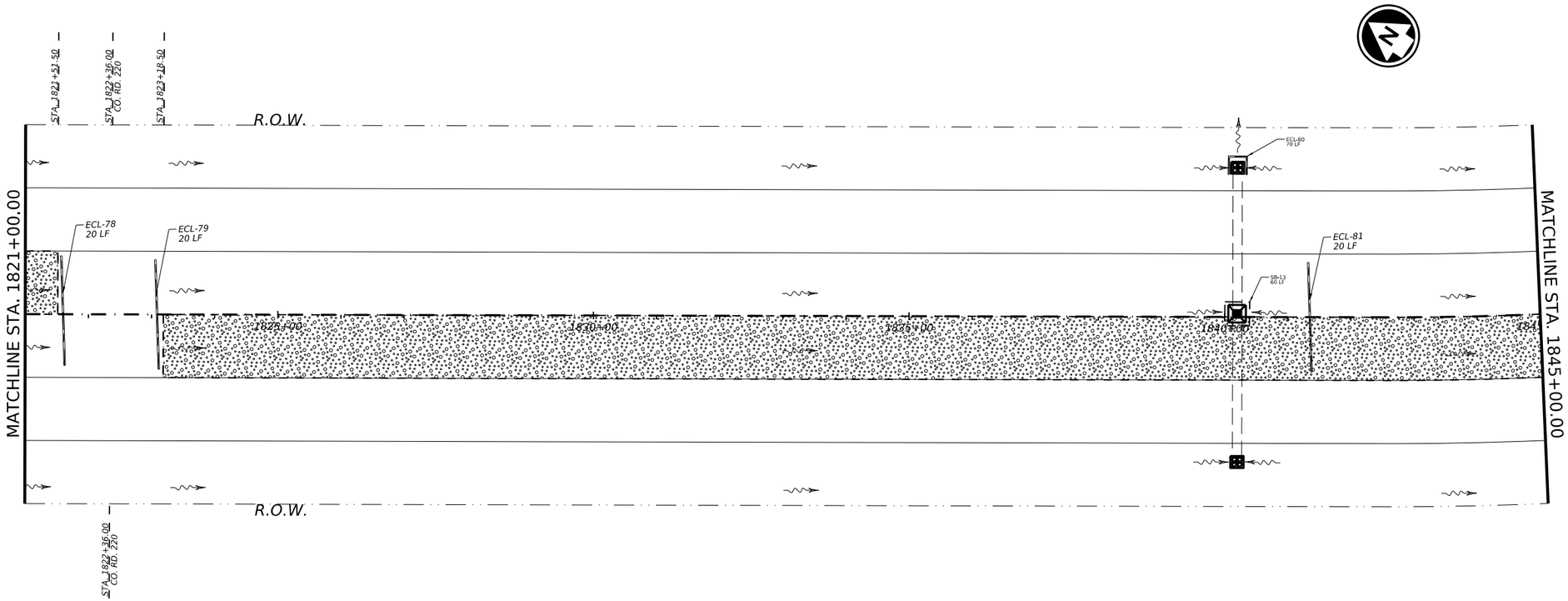

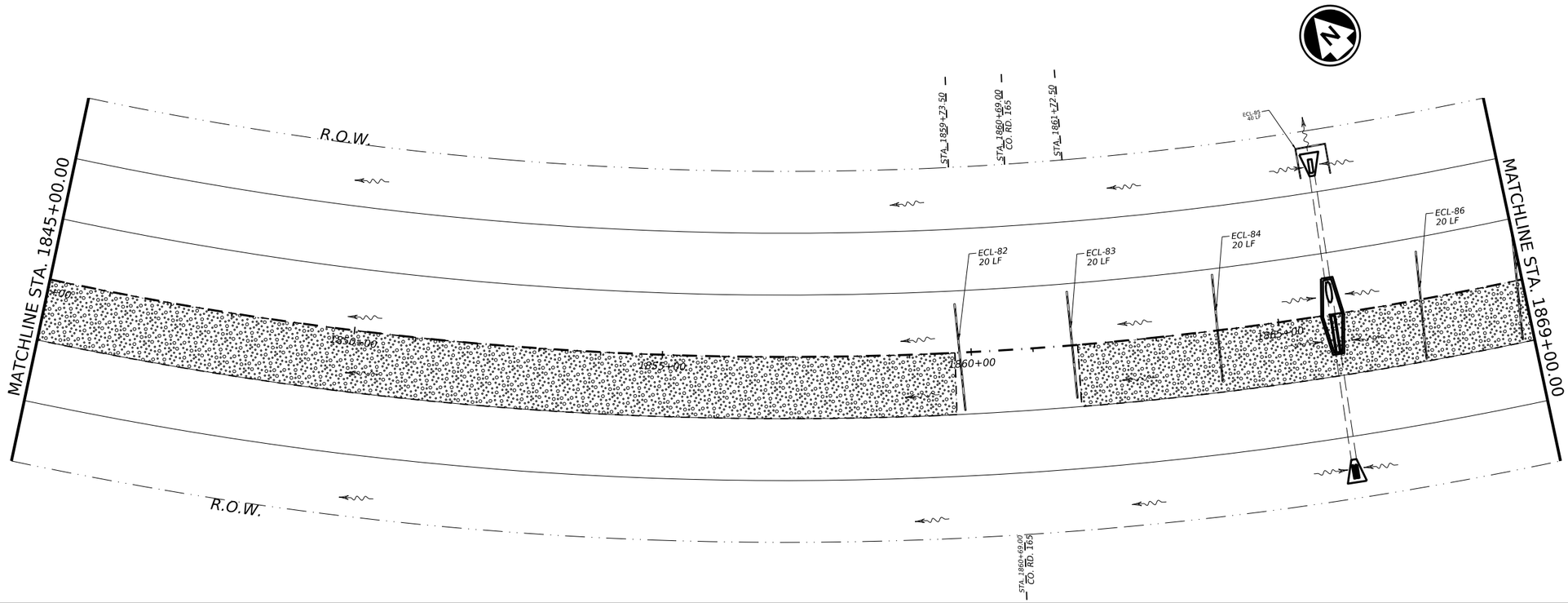

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 18 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		209

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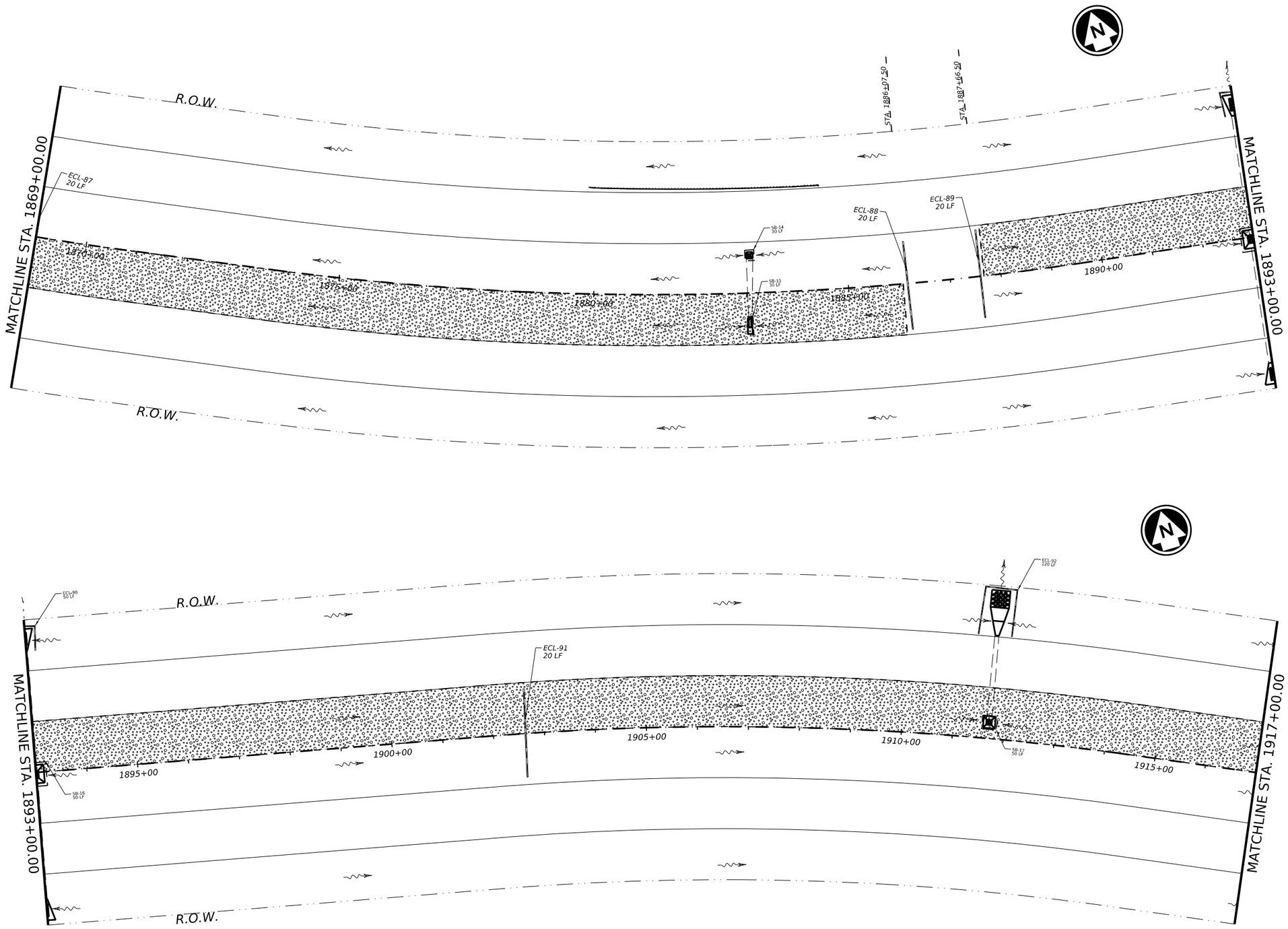

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 19 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		210

DATE: 2/2/2024 3:34:50 PM
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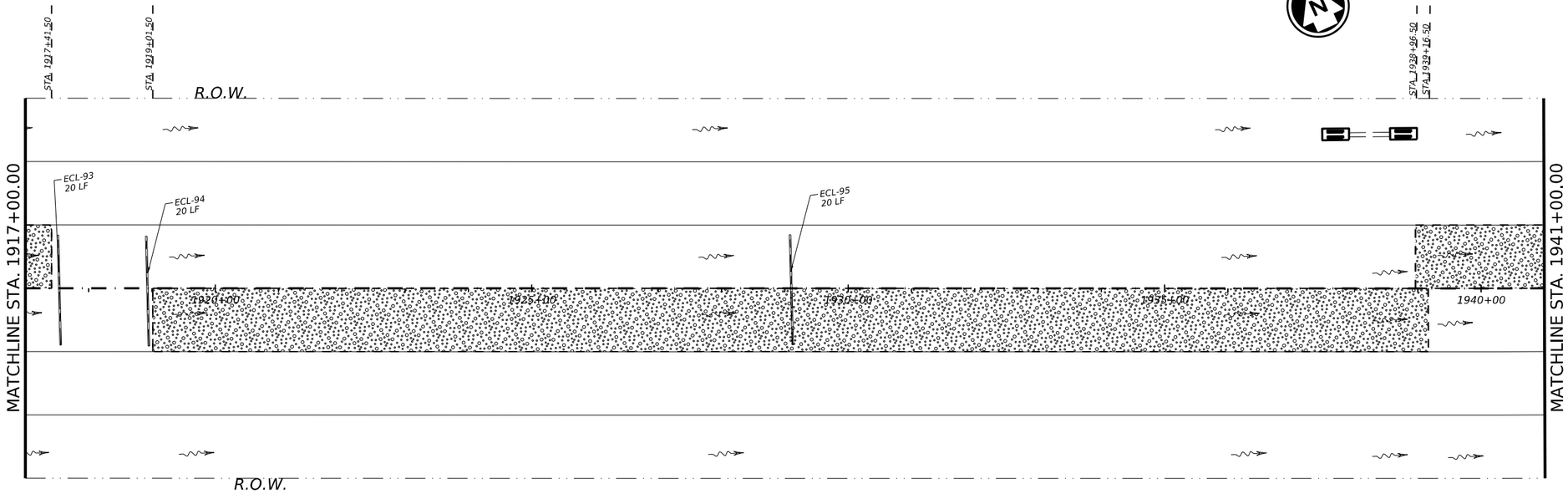

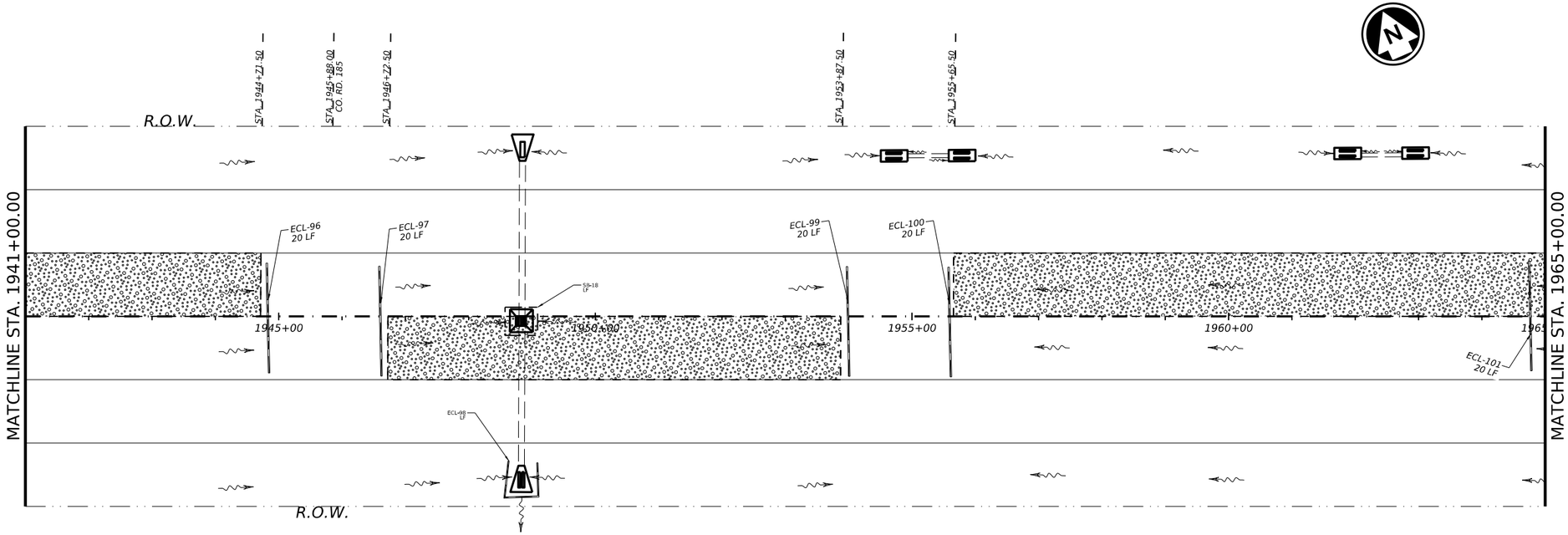

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 20 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		211

DATE: 2/2/2024 3:35:07 PM
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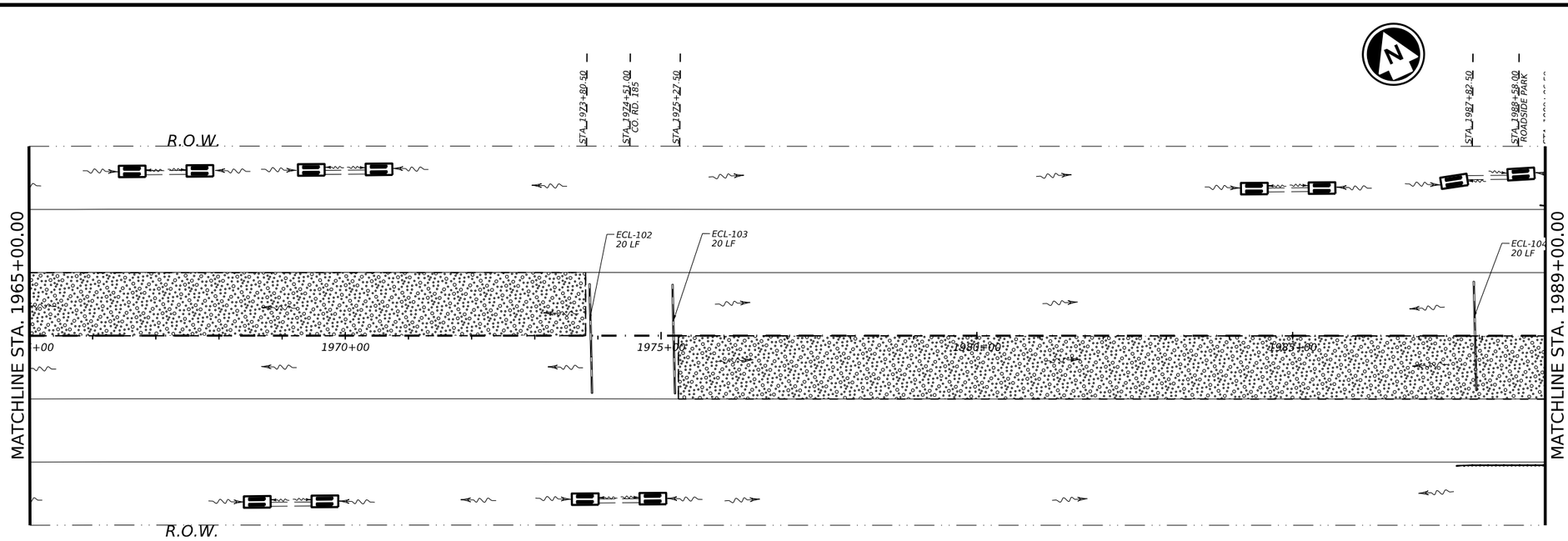

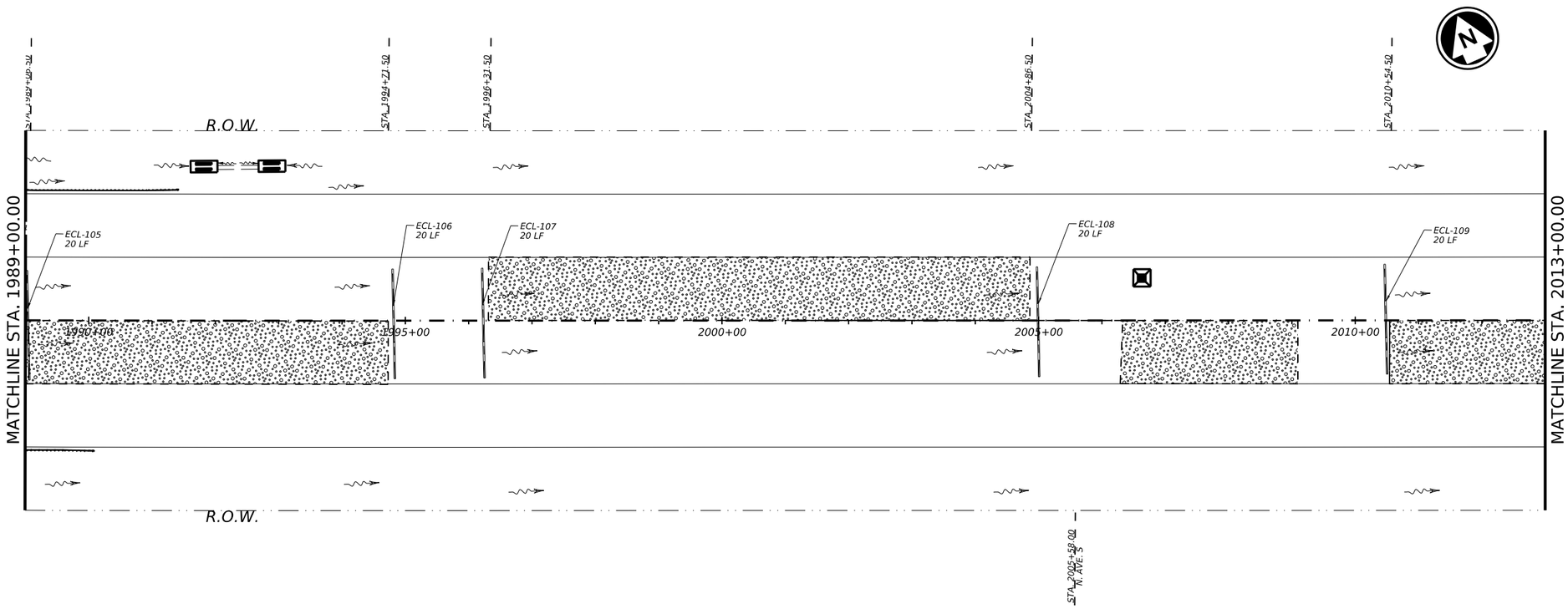

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
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US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

SHEET 21 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		212

DATE: 2/2/2024 3:35:24 PM
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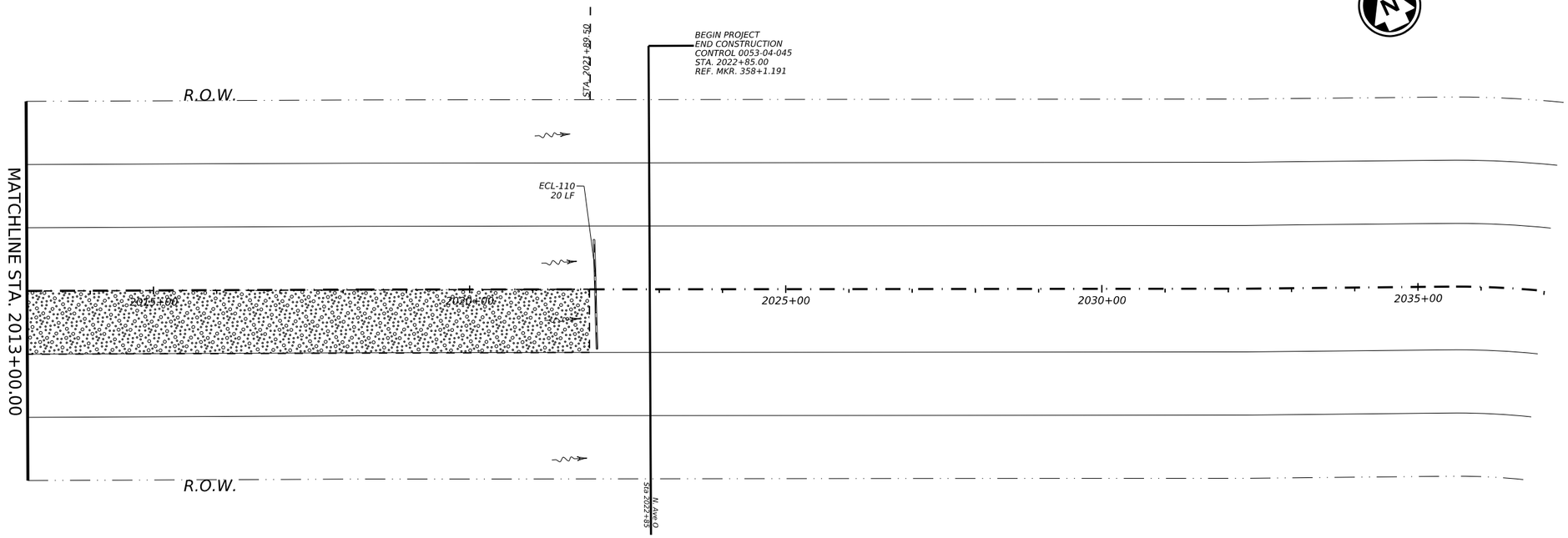

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
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1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 North)
SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		213

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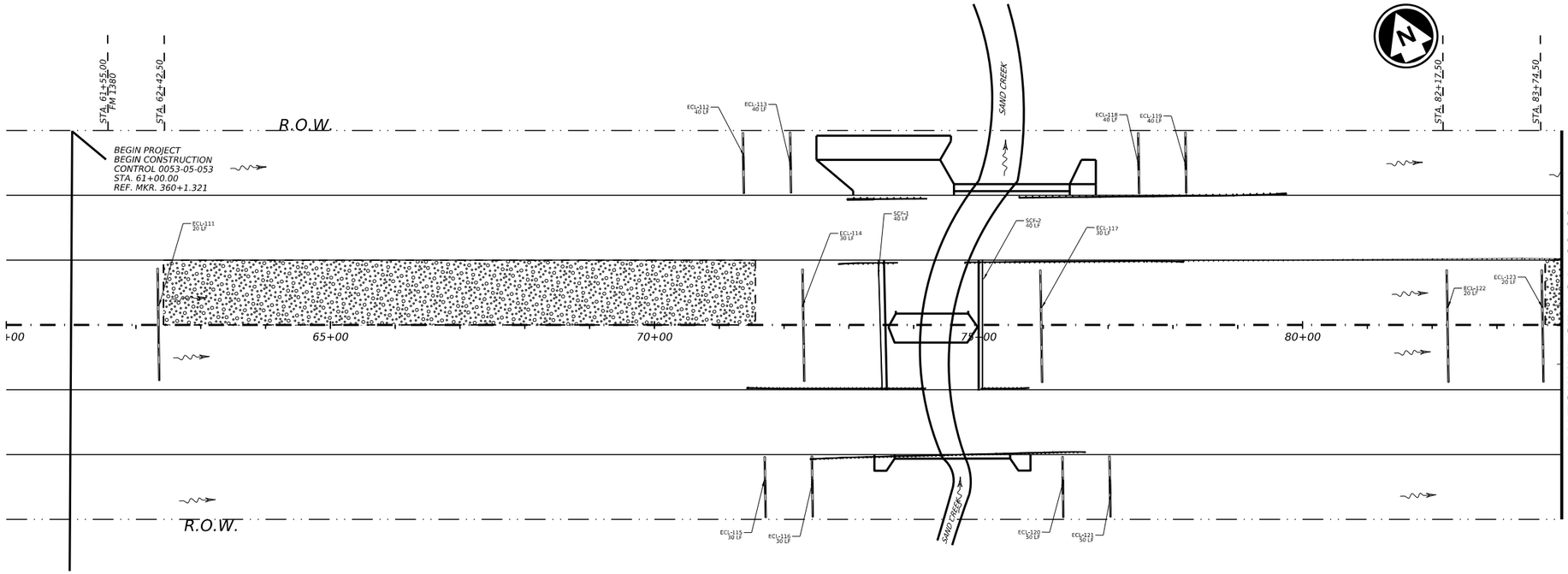

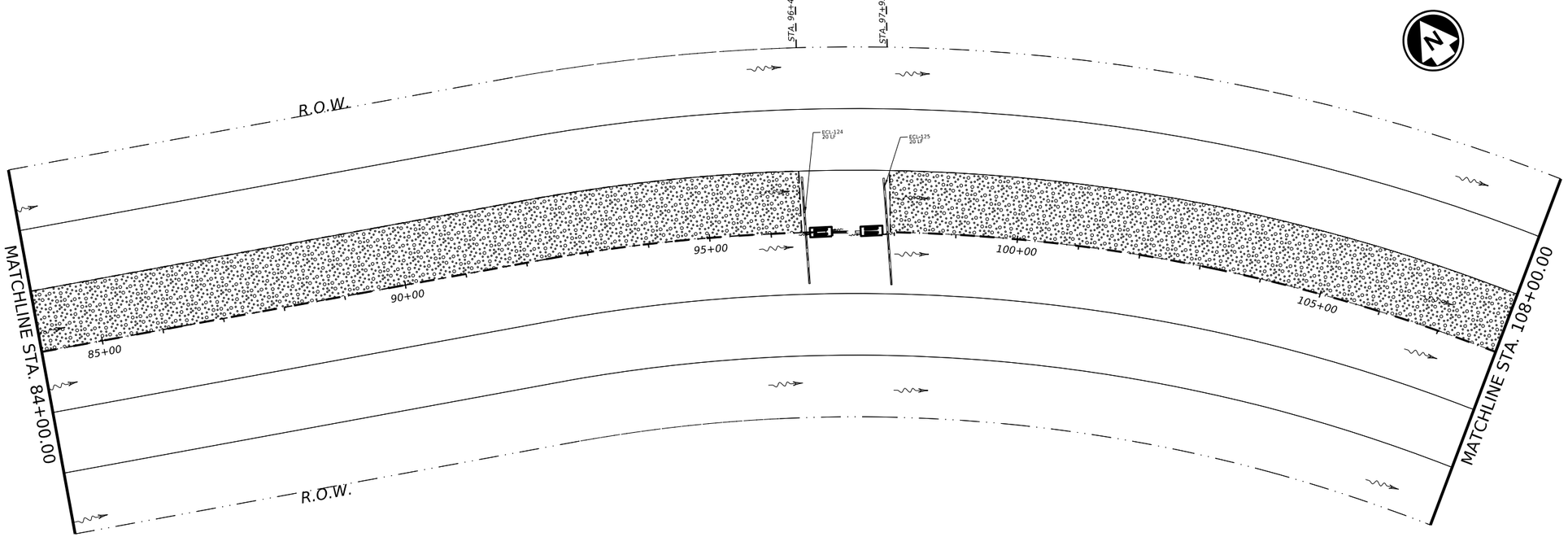

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 1 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		214

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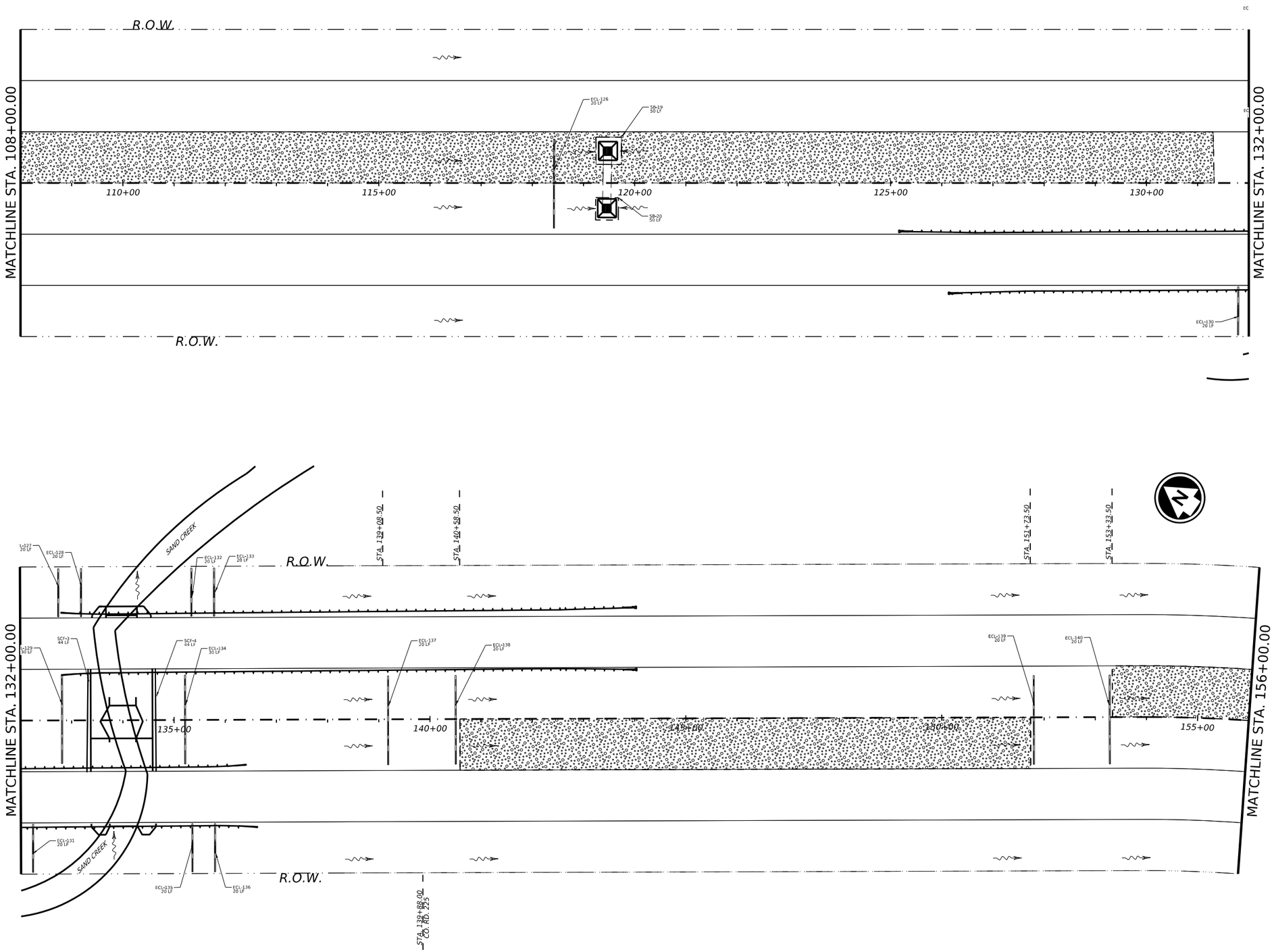

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 2 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		215

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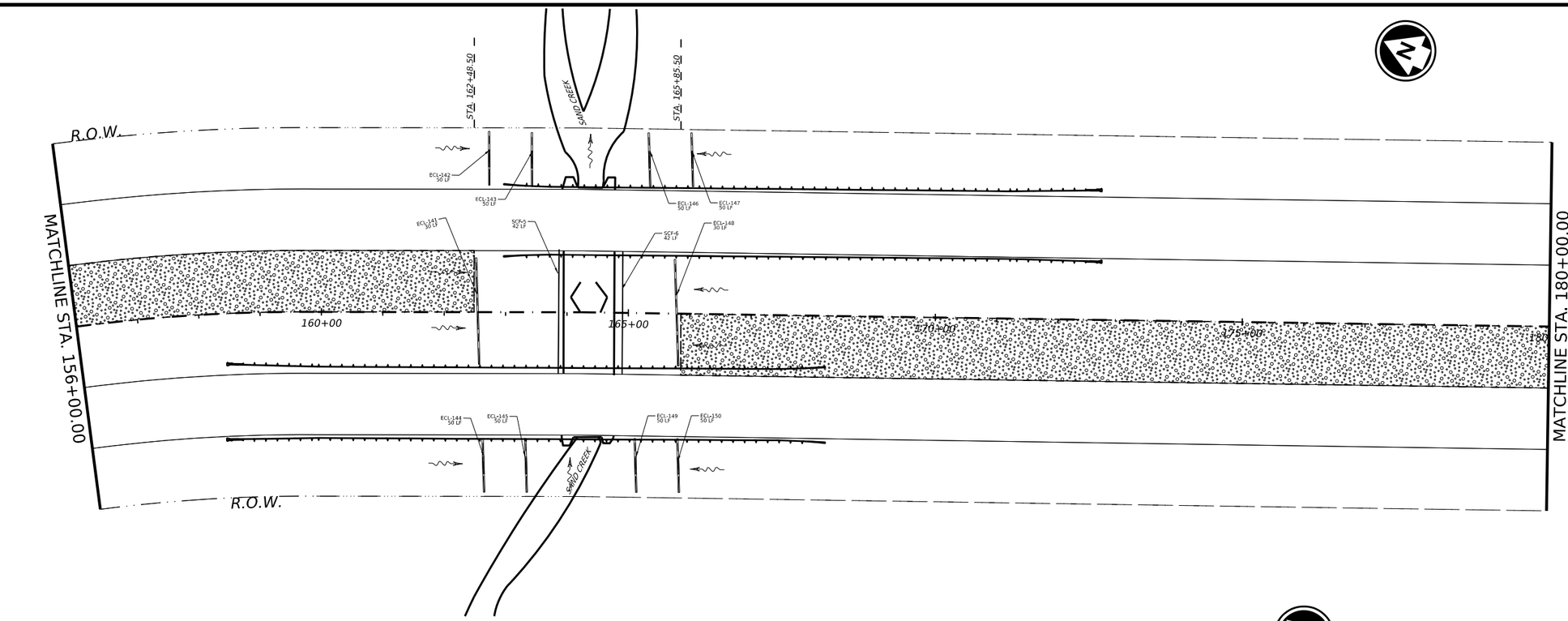

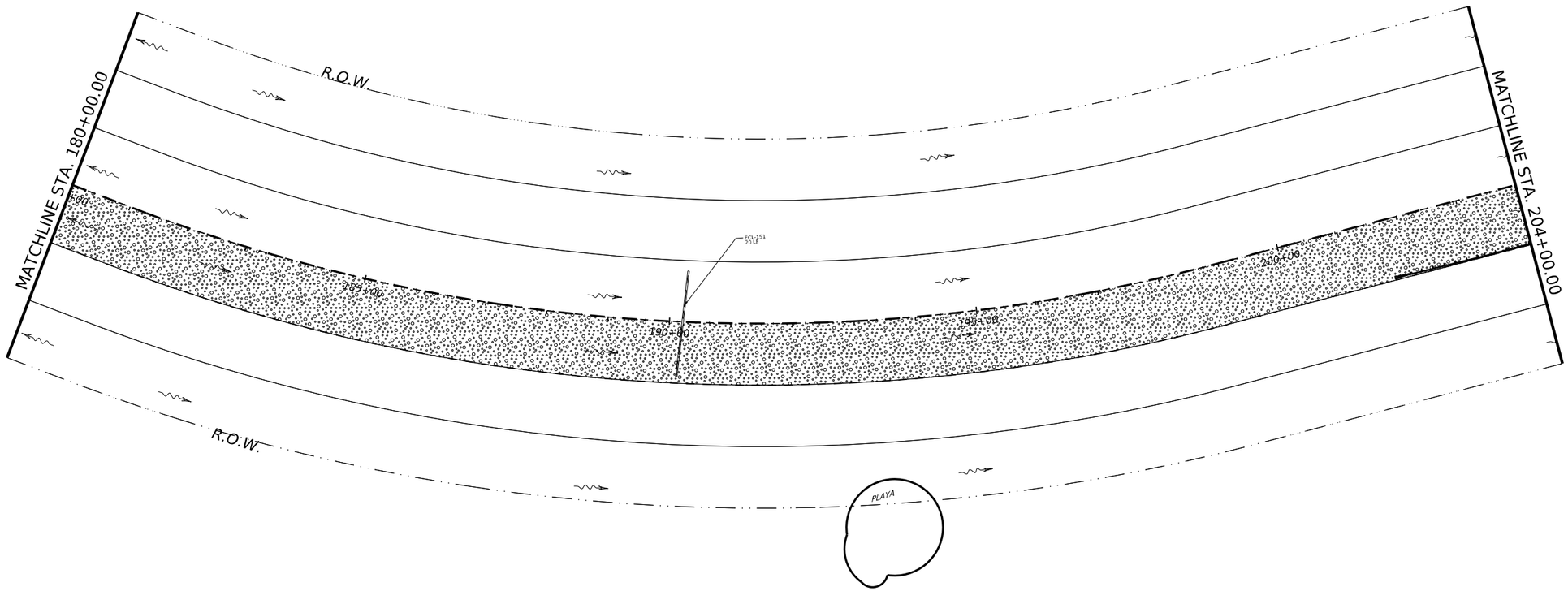

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
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1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 3 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		216

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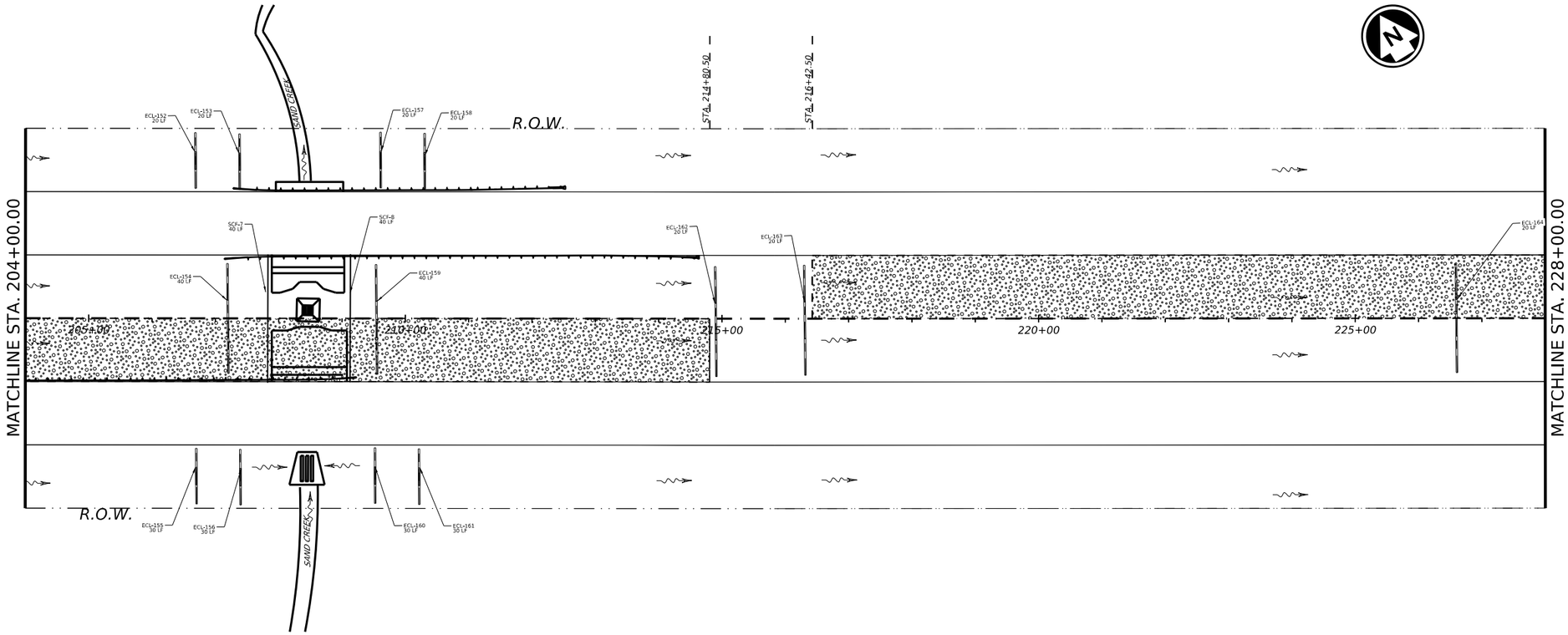

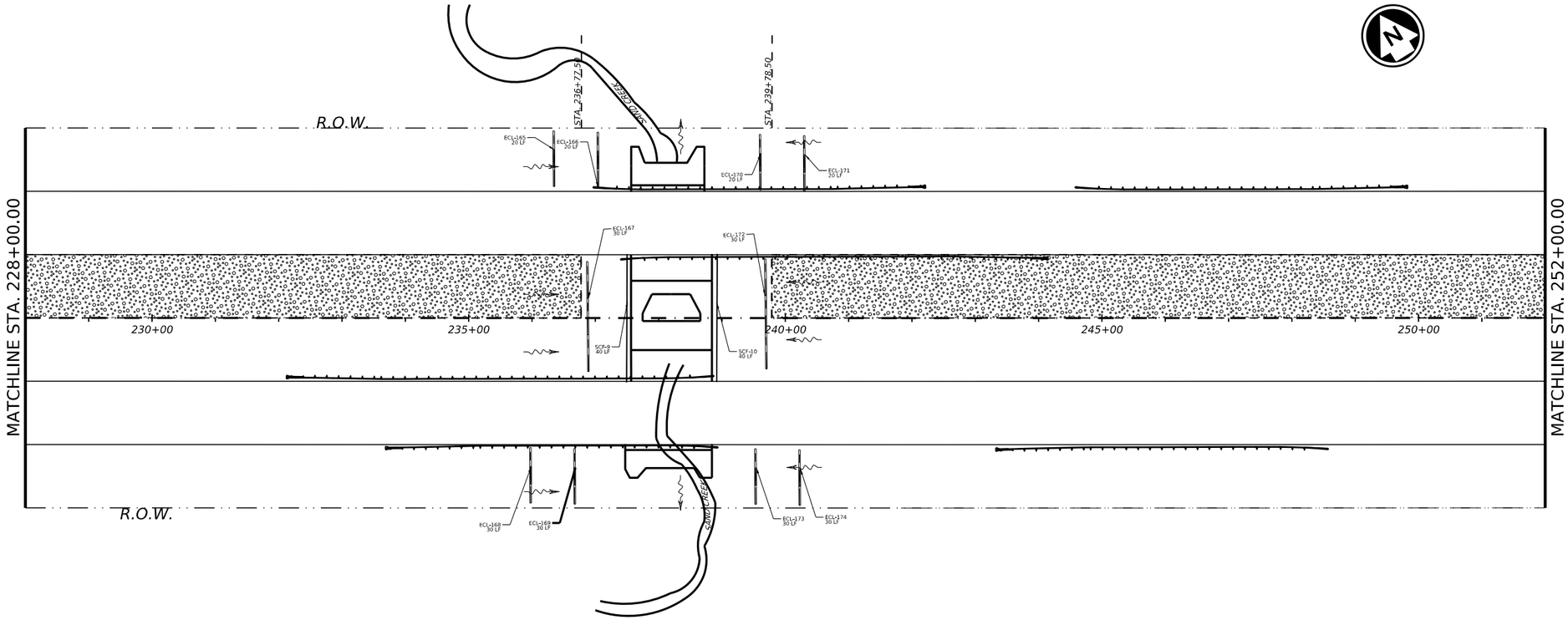

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
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PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 4 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		217

DATE: 2/2/2024 3:49:01 PM
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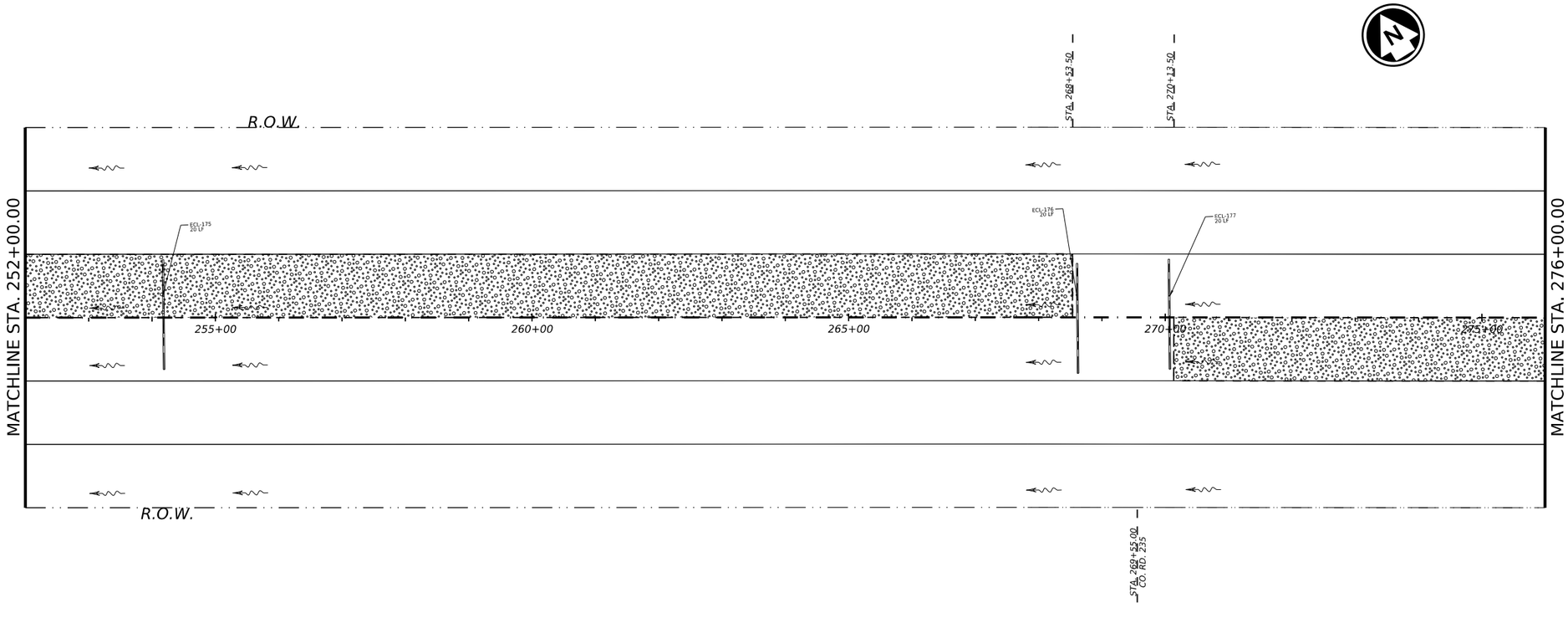

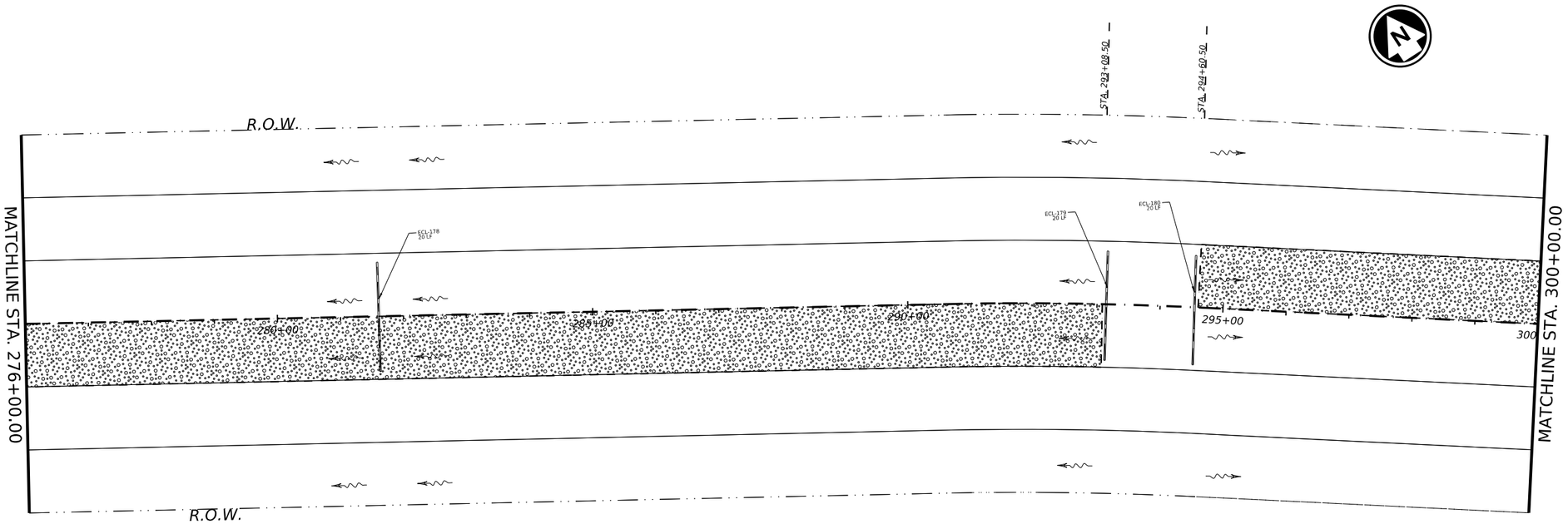

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 5 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		218

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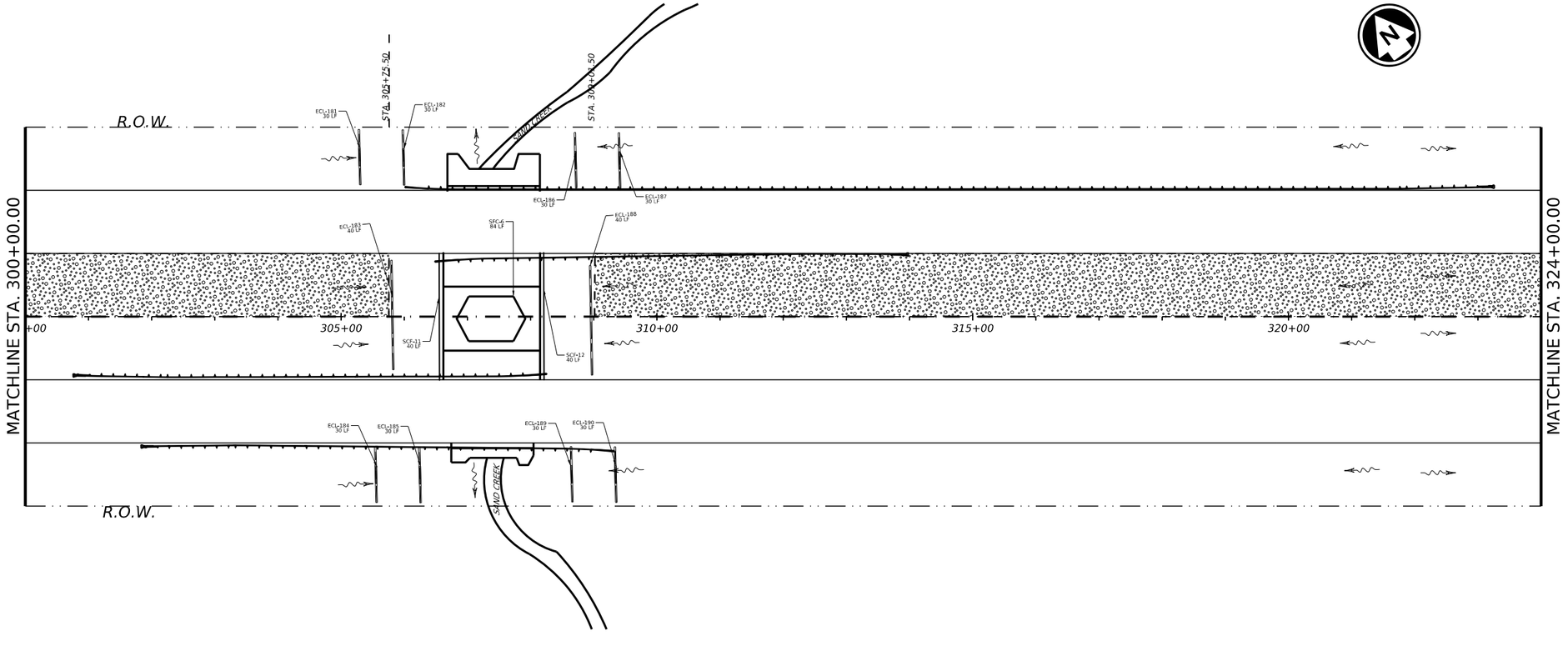

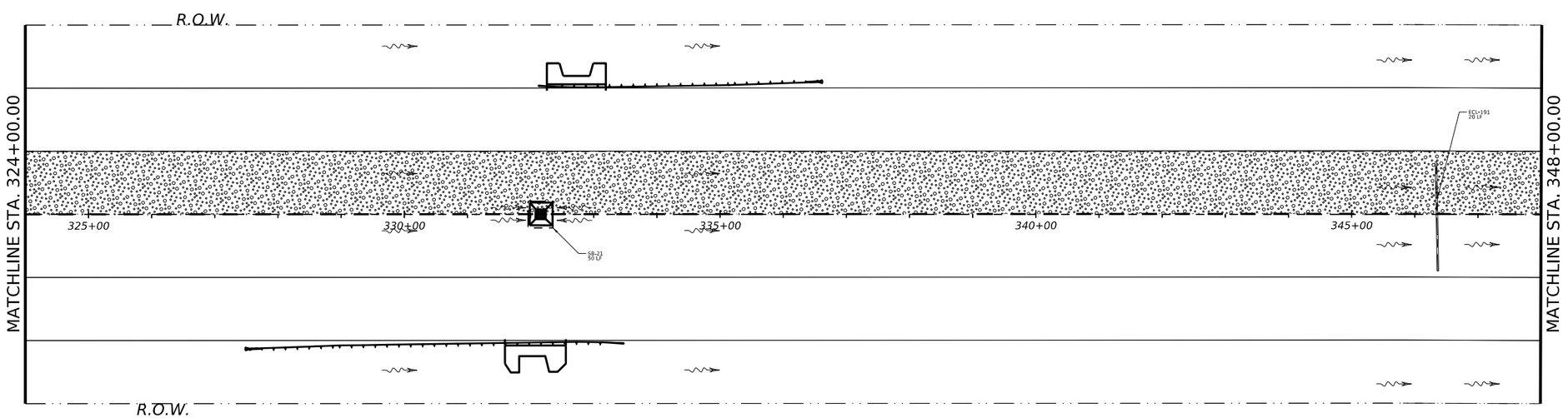

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 6 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		219

DATE: 2/2/2024 3:49:45 PM
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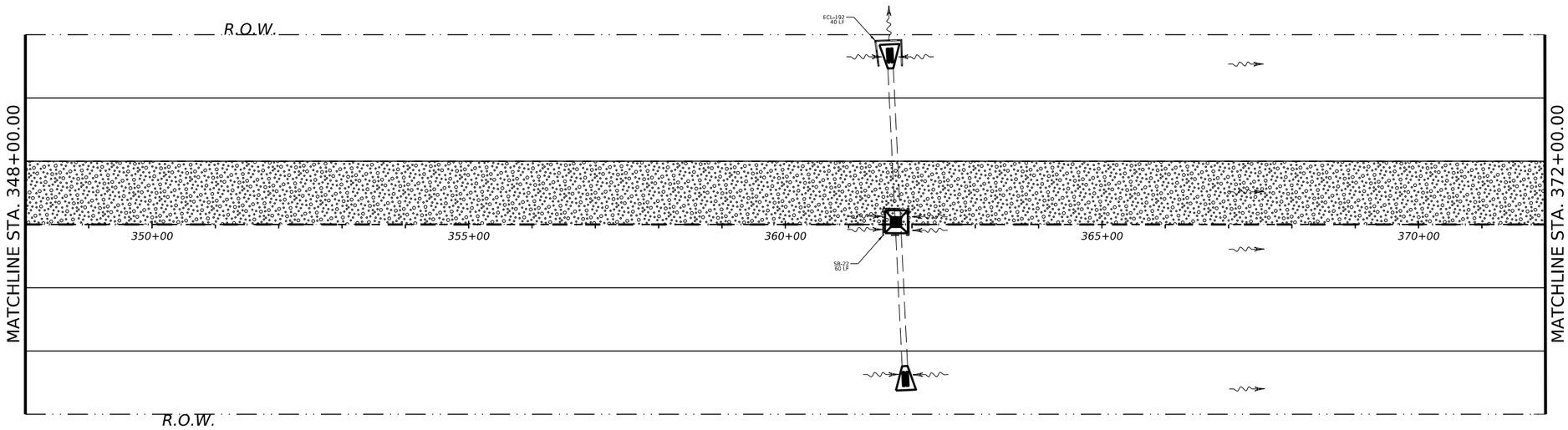

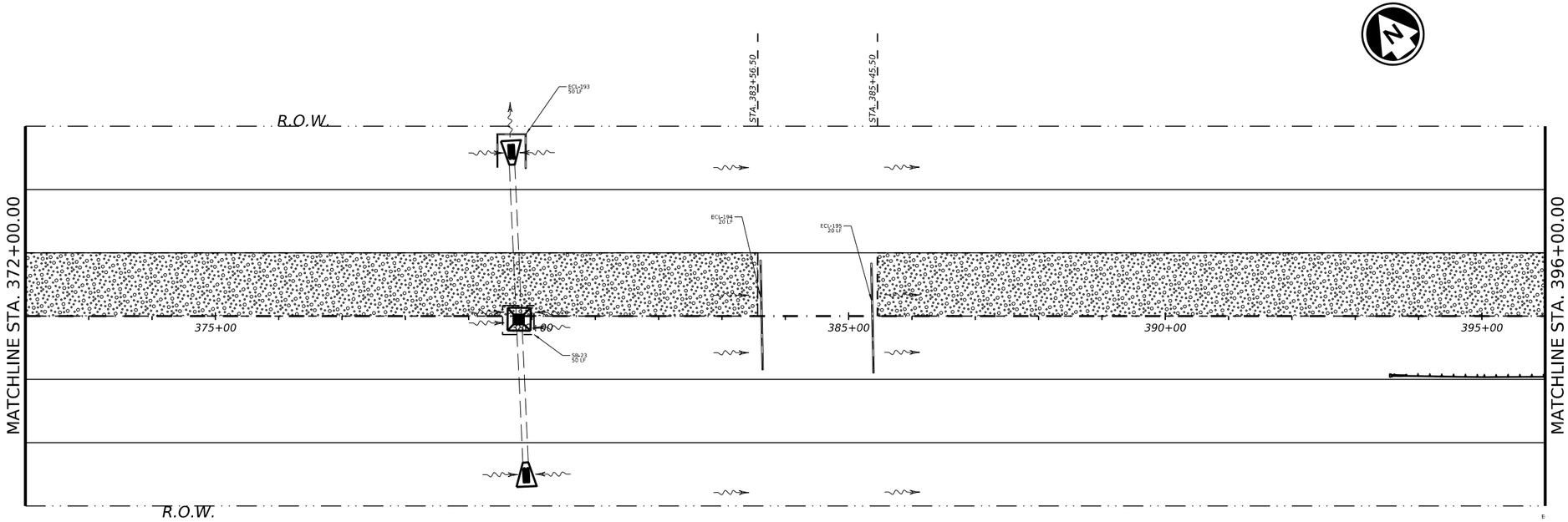

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 7 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		220

DATE: 2/2/2024 3:50:56 PM
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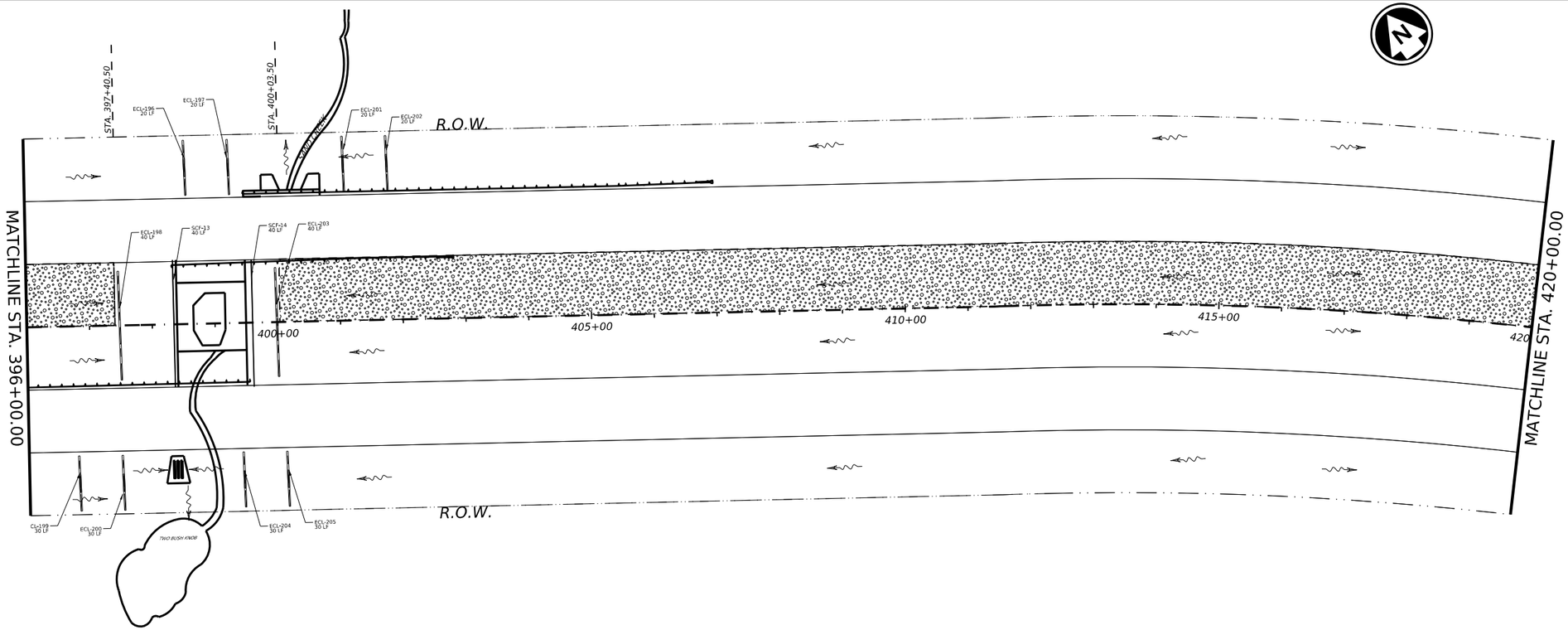

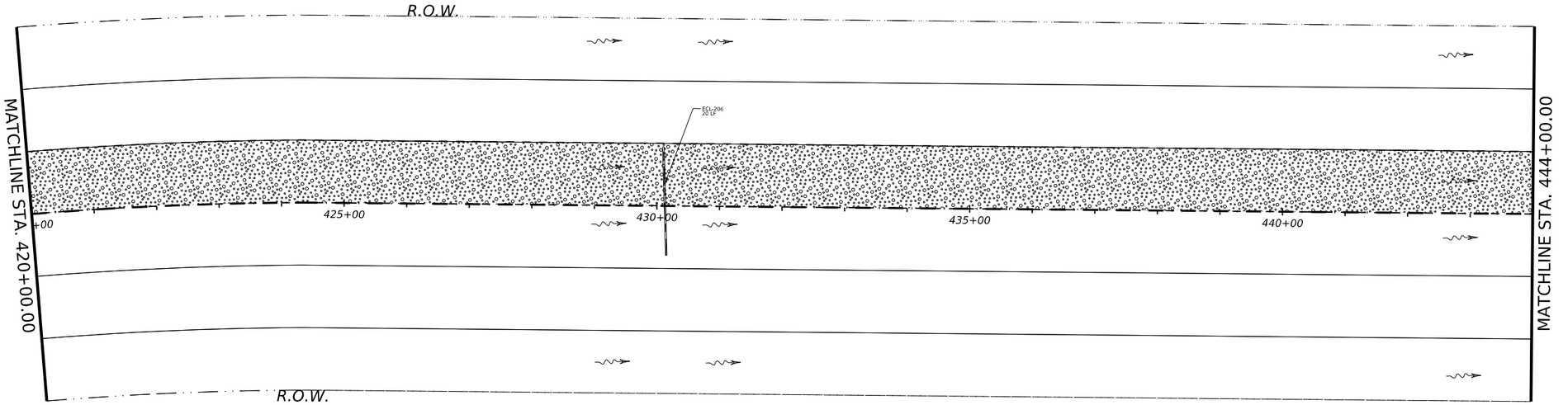

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 8 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		221

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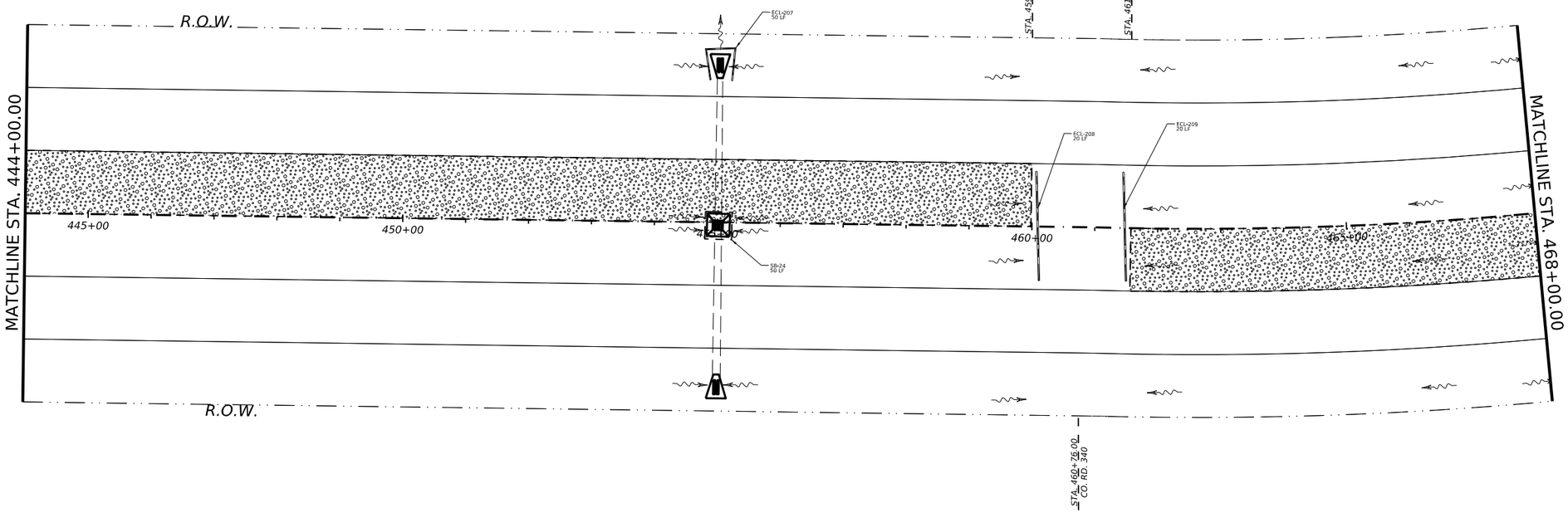

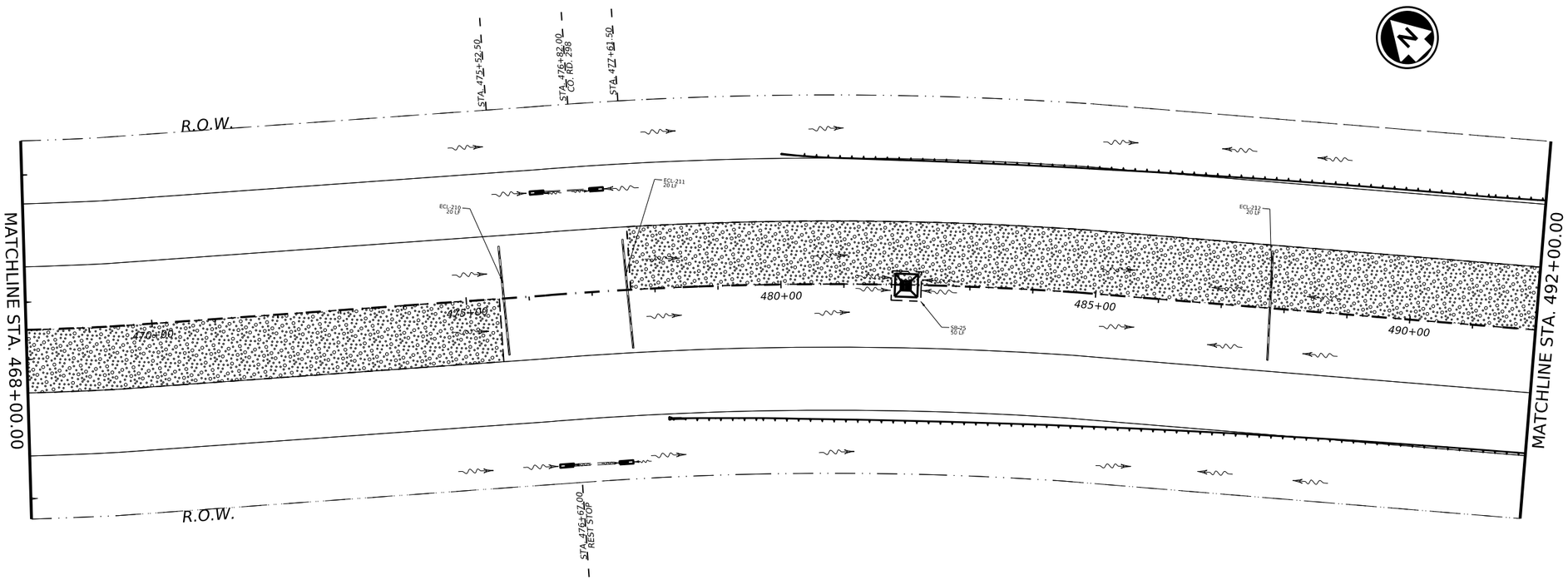

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 9 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		222

DATE: 2/2/2024 3:51:26 PM
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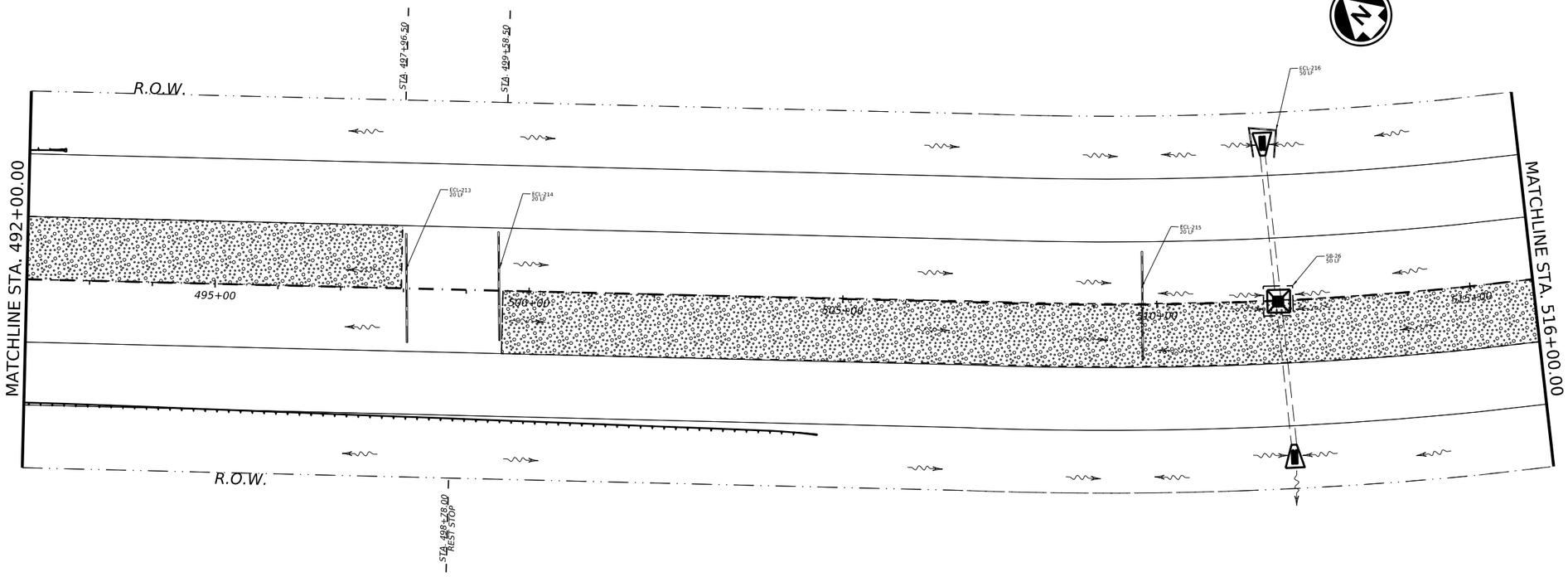

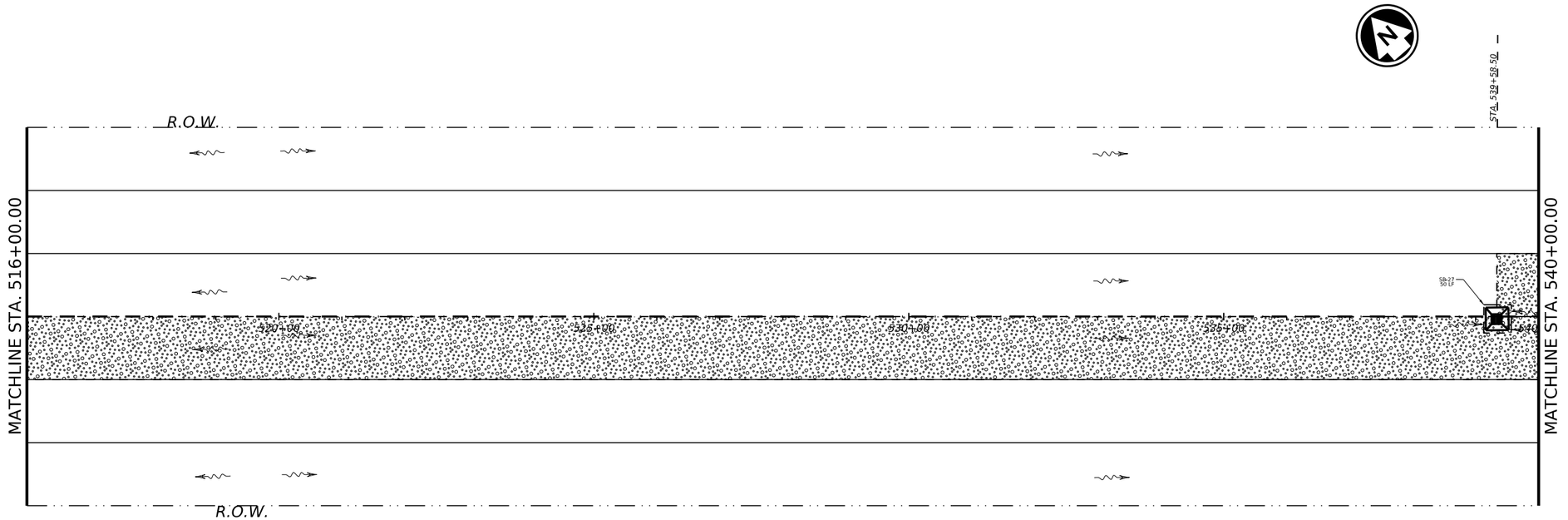

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
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PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 10 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		223

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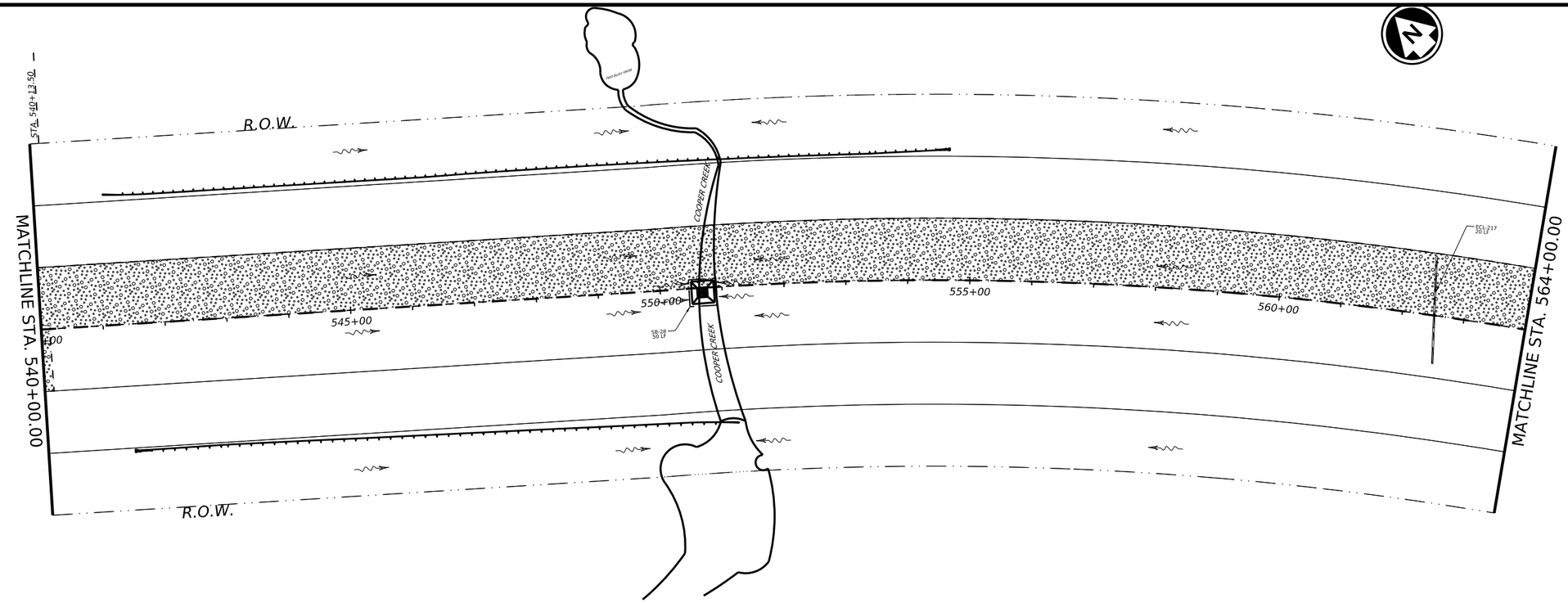

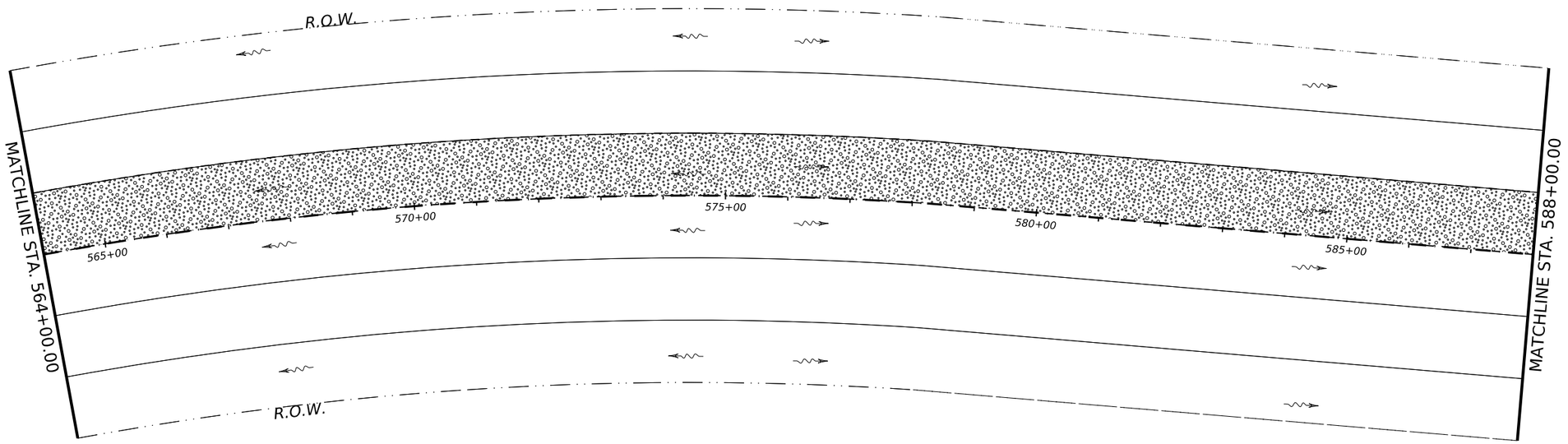

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 11 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		224

DATE: 2/2/2024 3:52:04 PM
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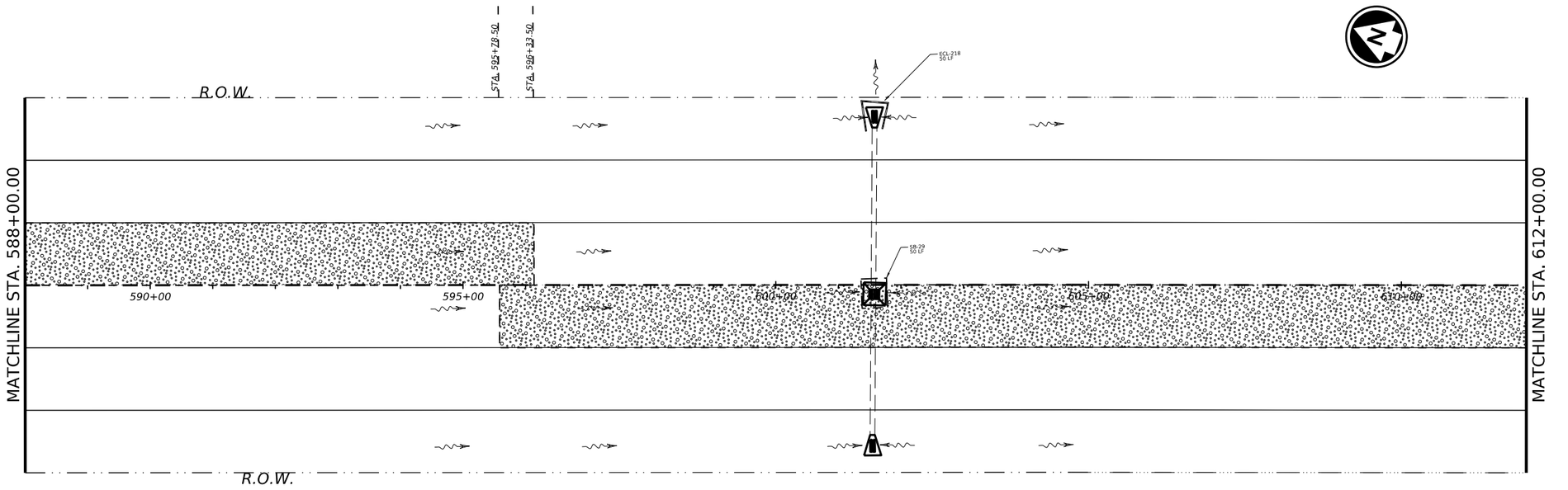

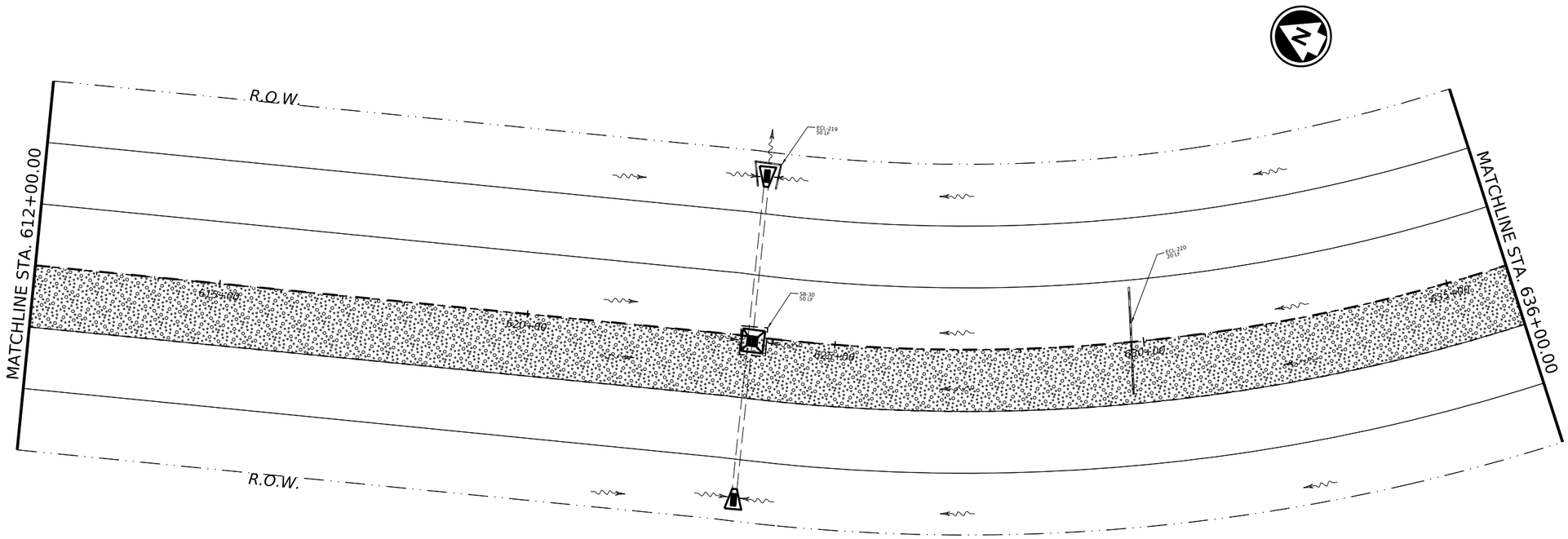

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 12 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		225

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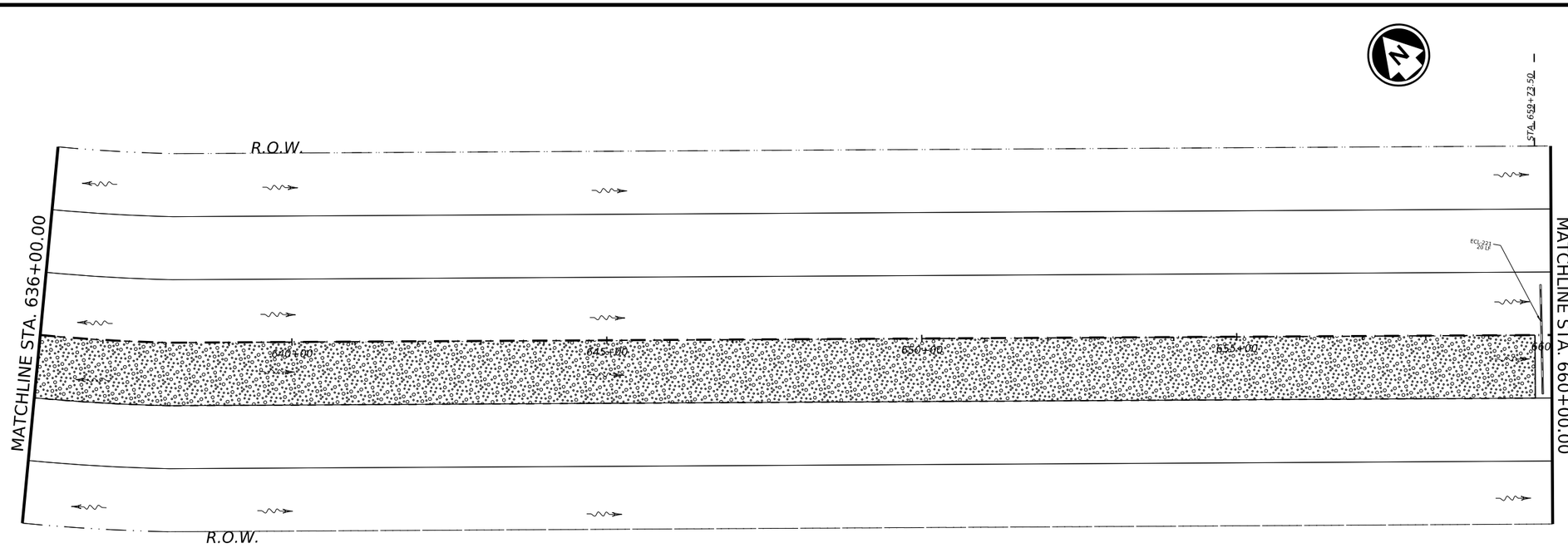

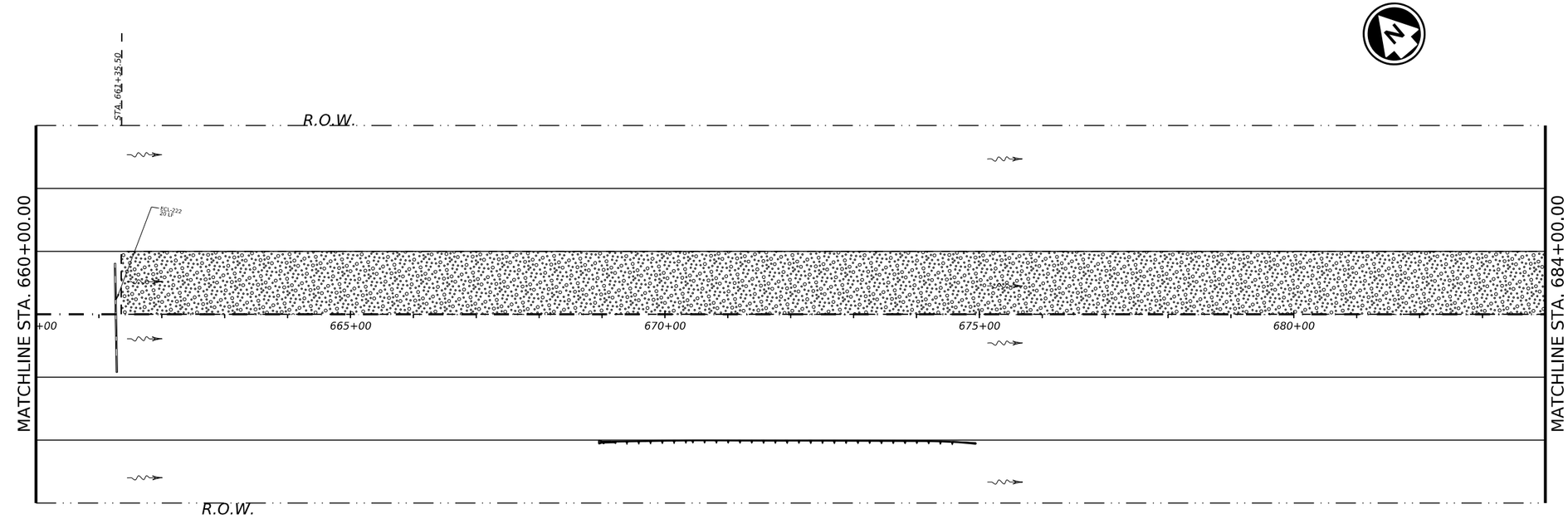

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
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Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 13 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		226

DATE: 2/2/2024 3:52:38 PM
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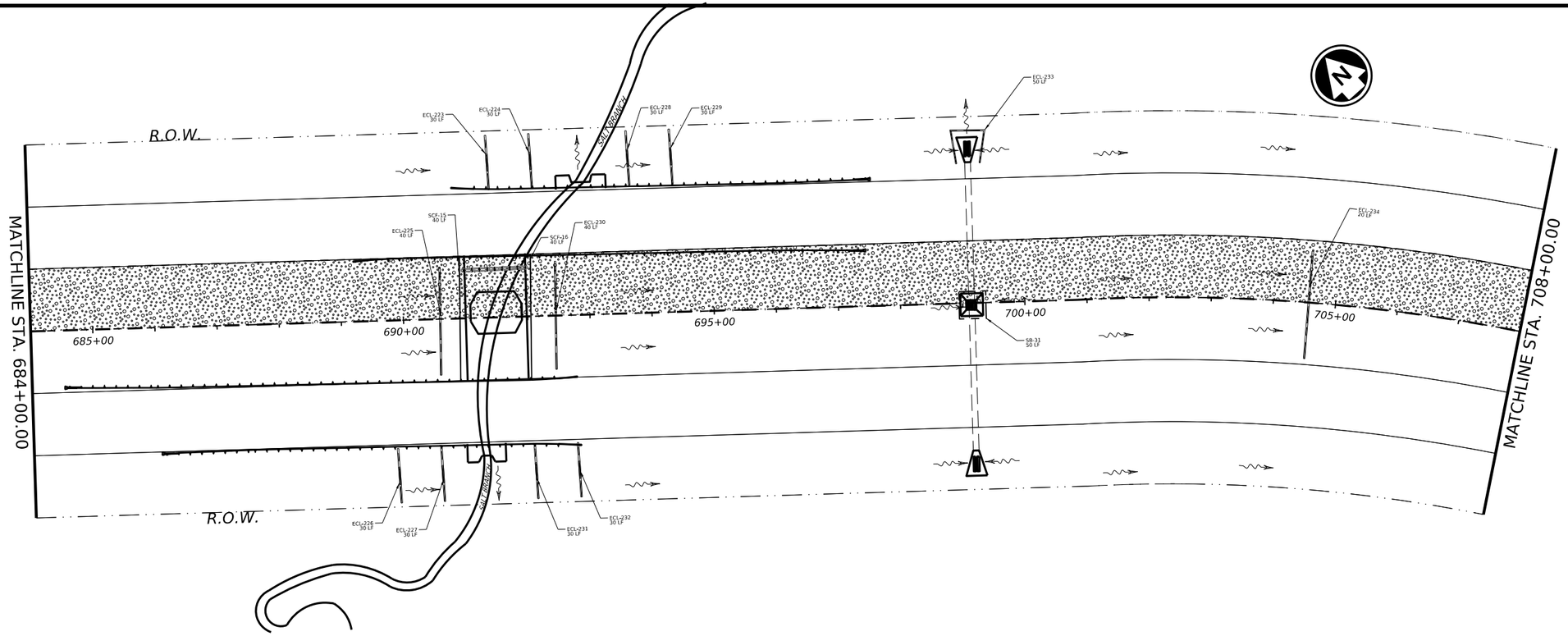

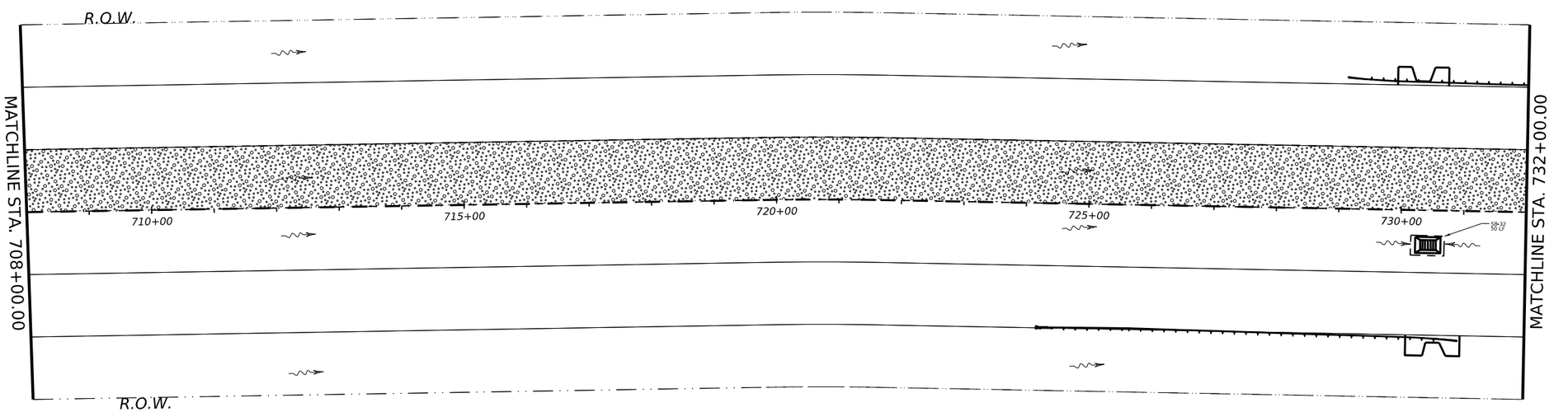

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 14 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		227

DATE: 2/2/2024 3:52:58 PM
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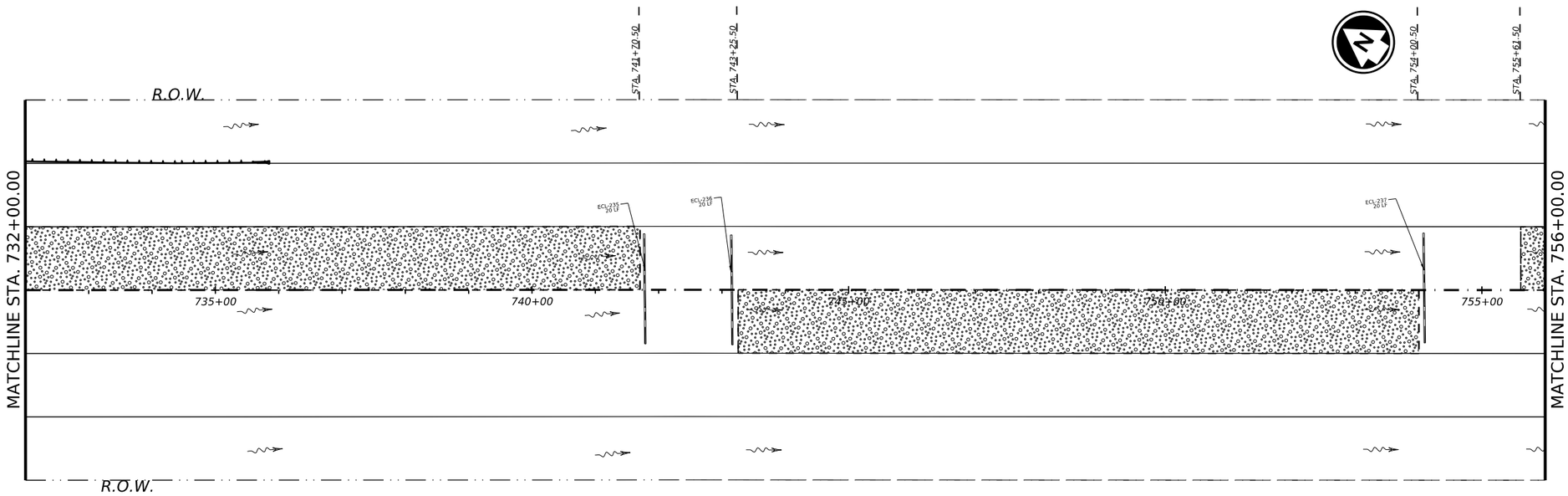

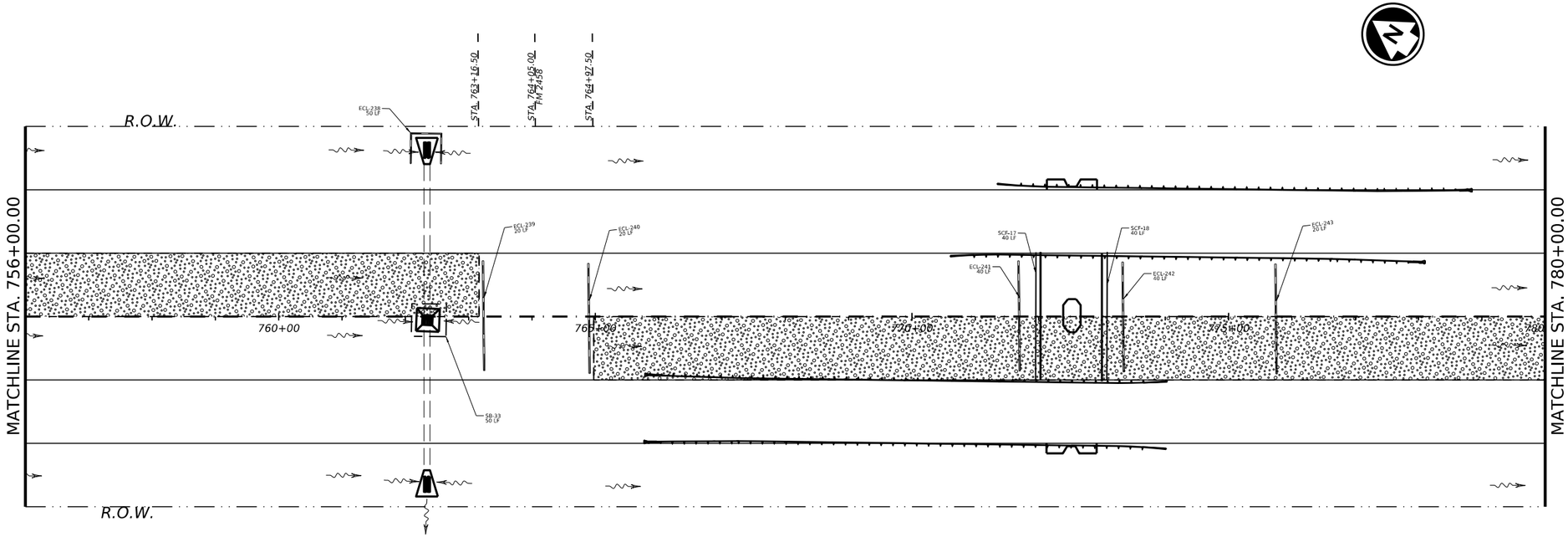

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
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US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 15 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		228

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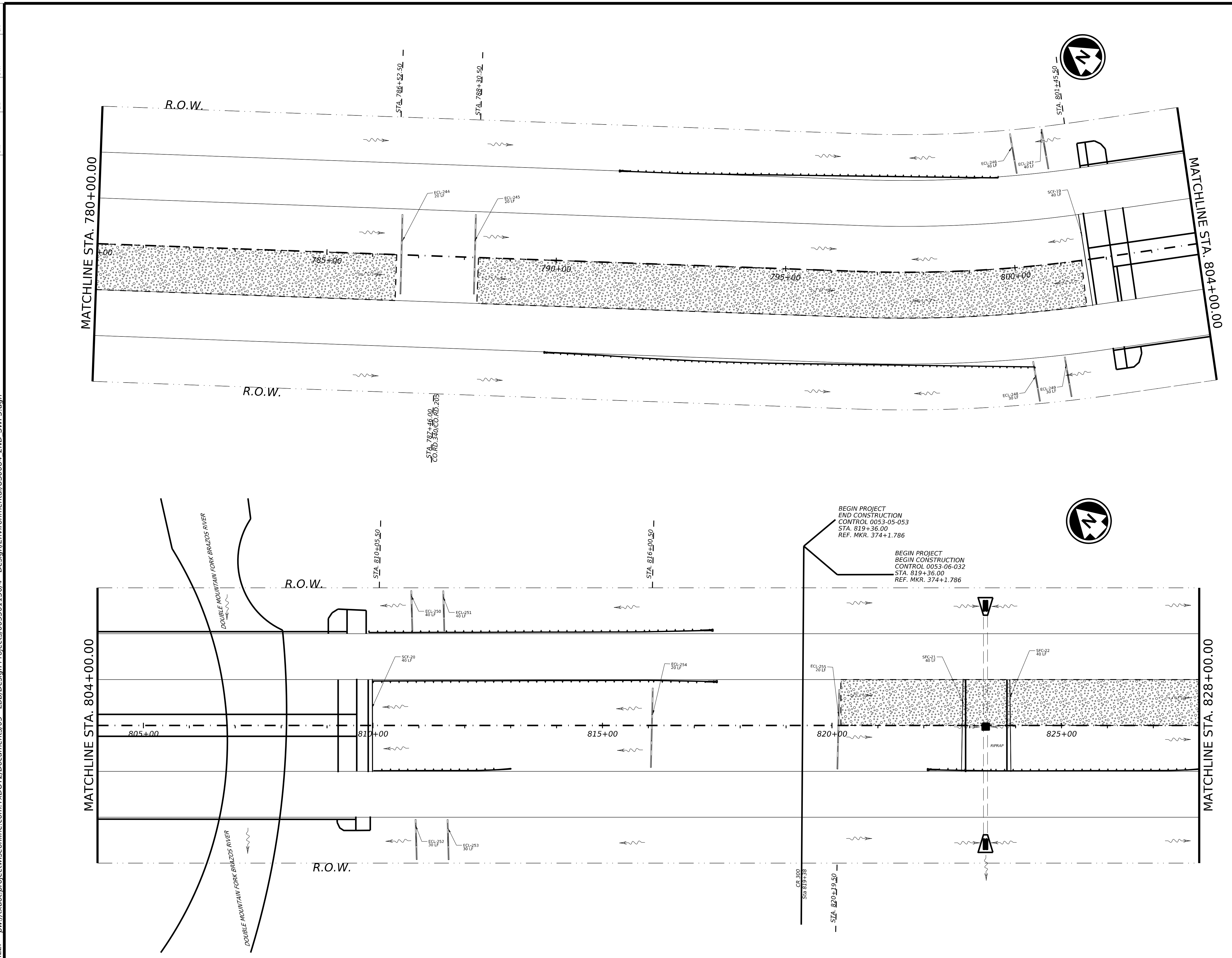

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

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US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1''=200'

SHEET 16 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		229

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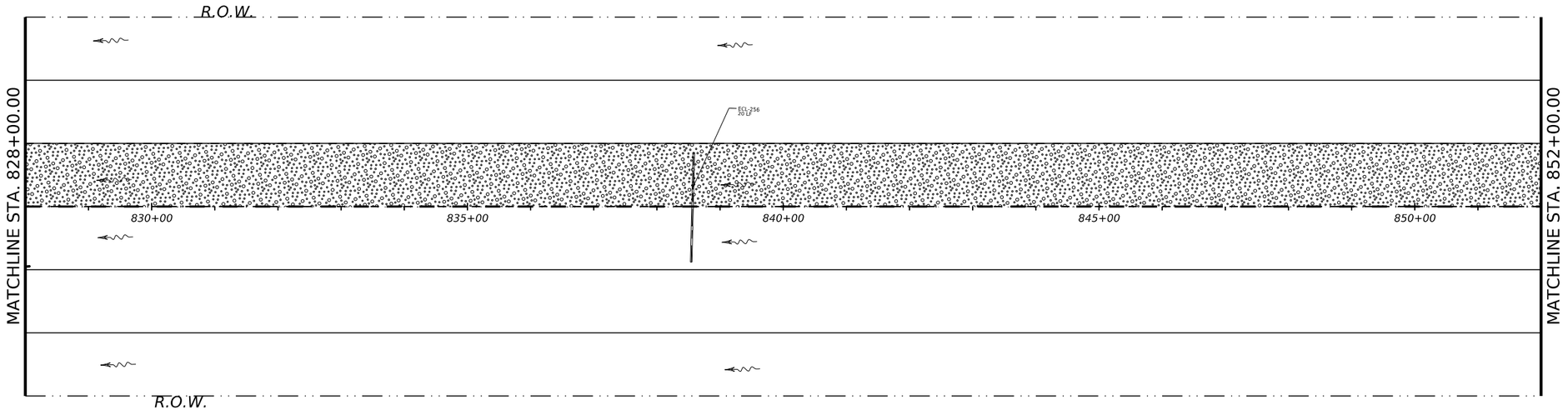
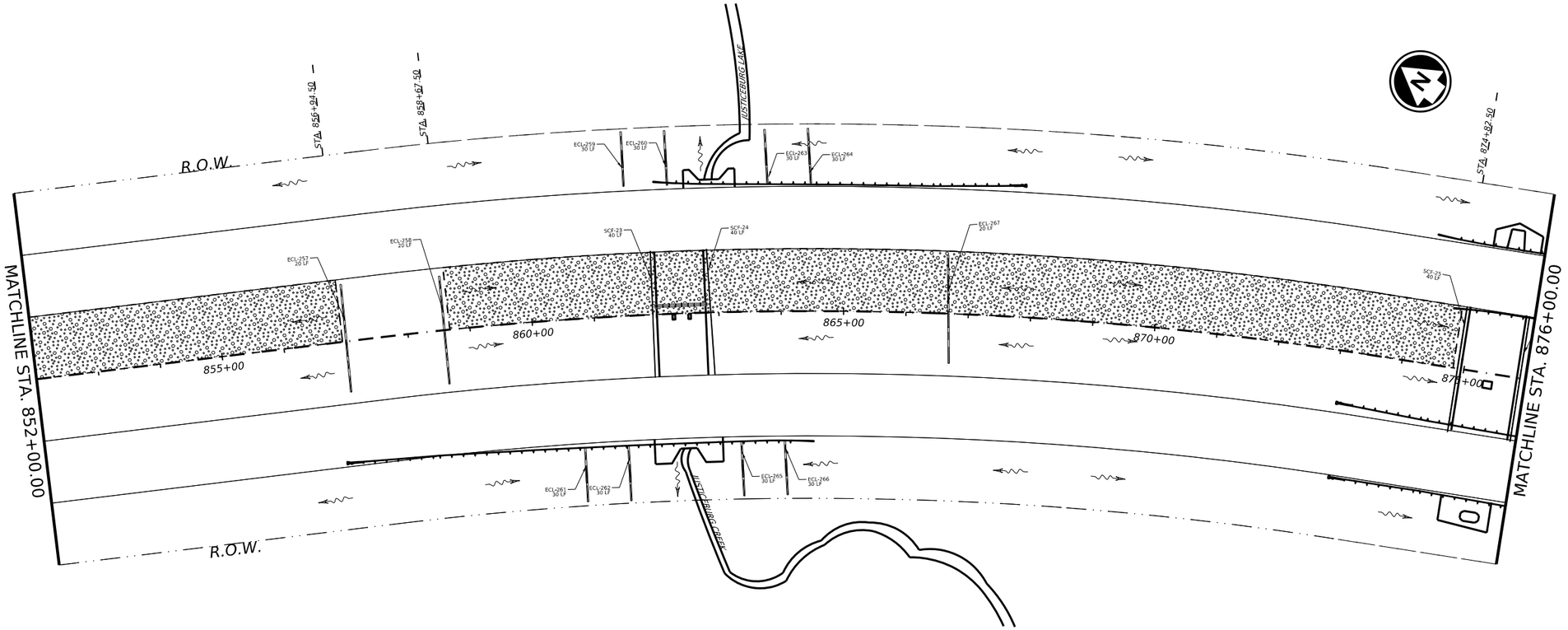


LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA



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1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 17 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		230

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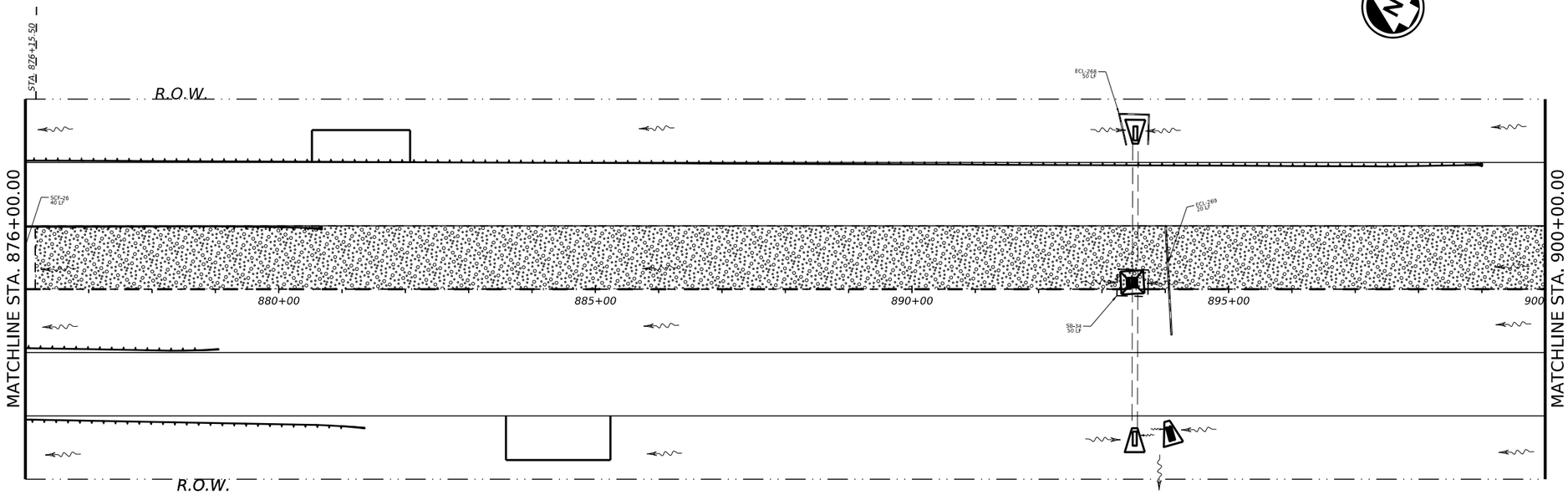
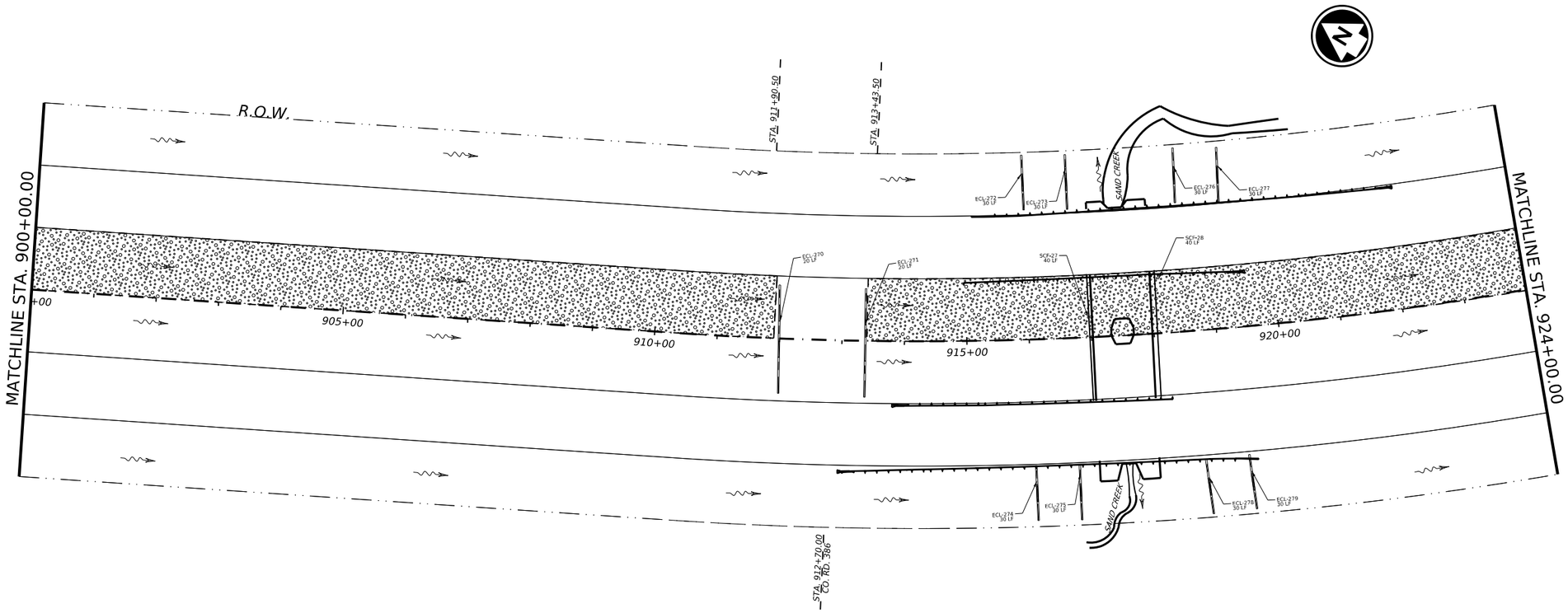


LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA



STATE OF TEXAS
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1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 18 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		231

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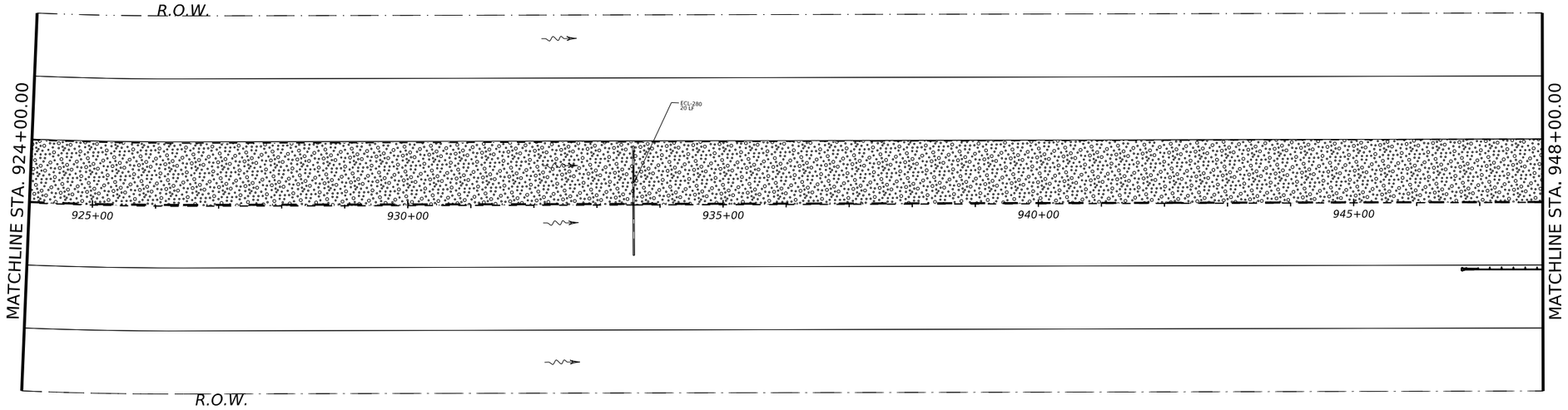
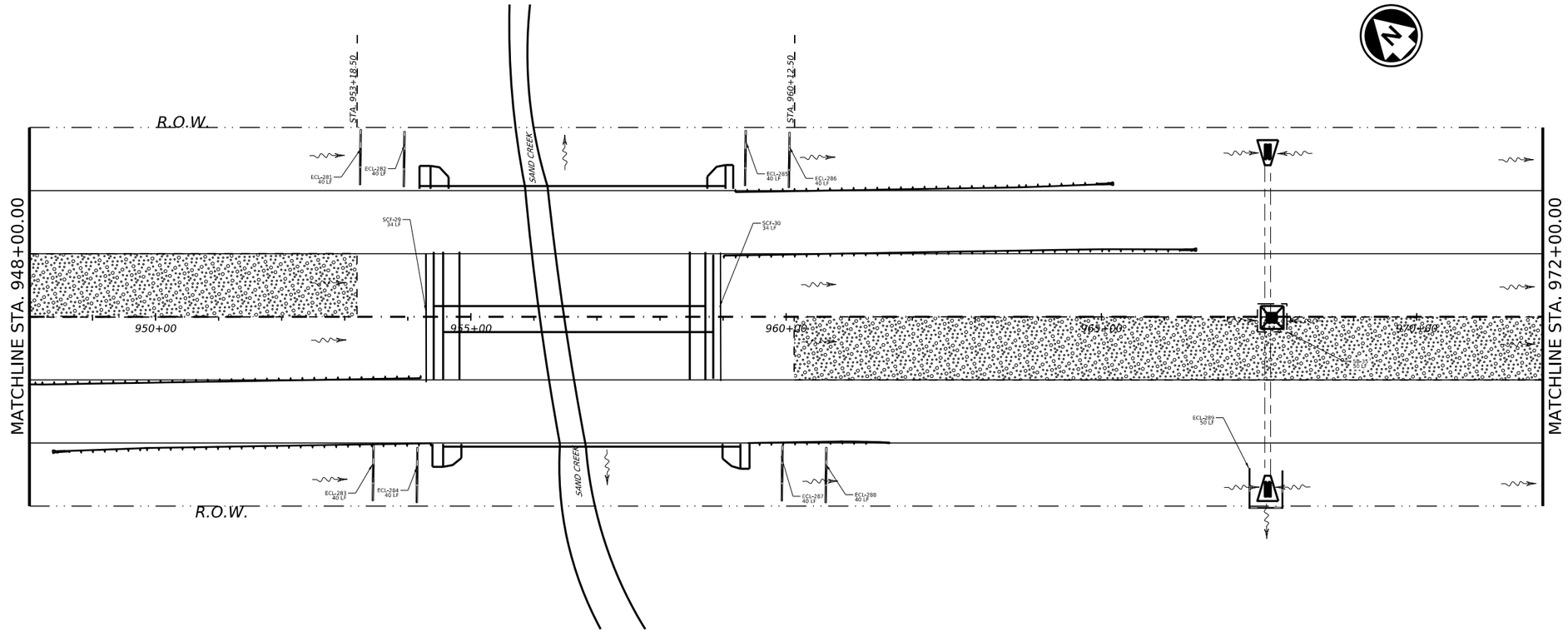


LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA



STATE OF TEXAS
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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 19 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		232

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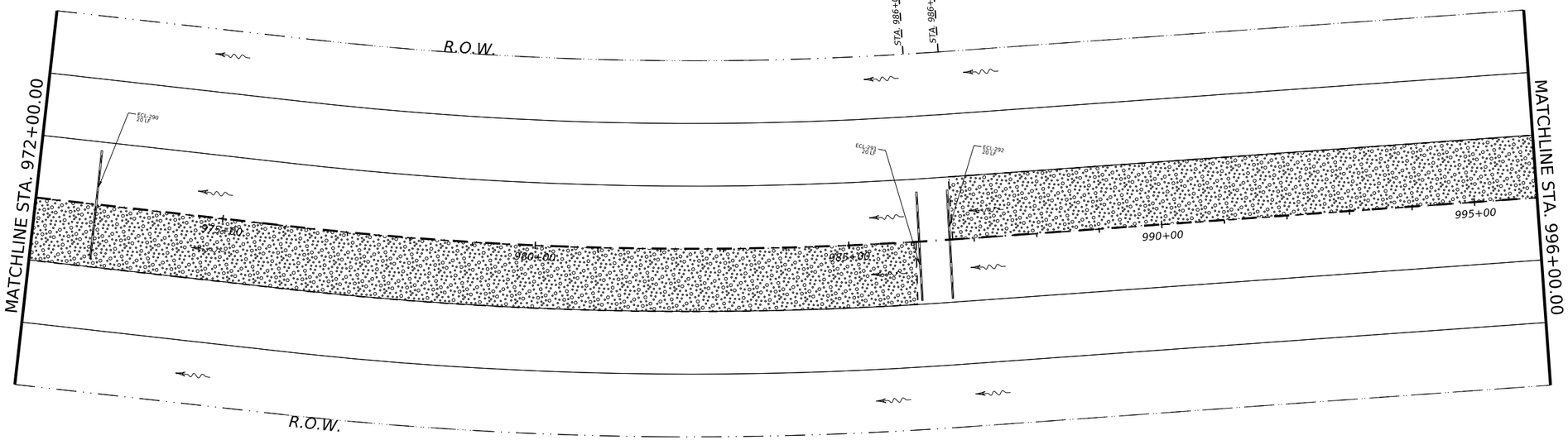

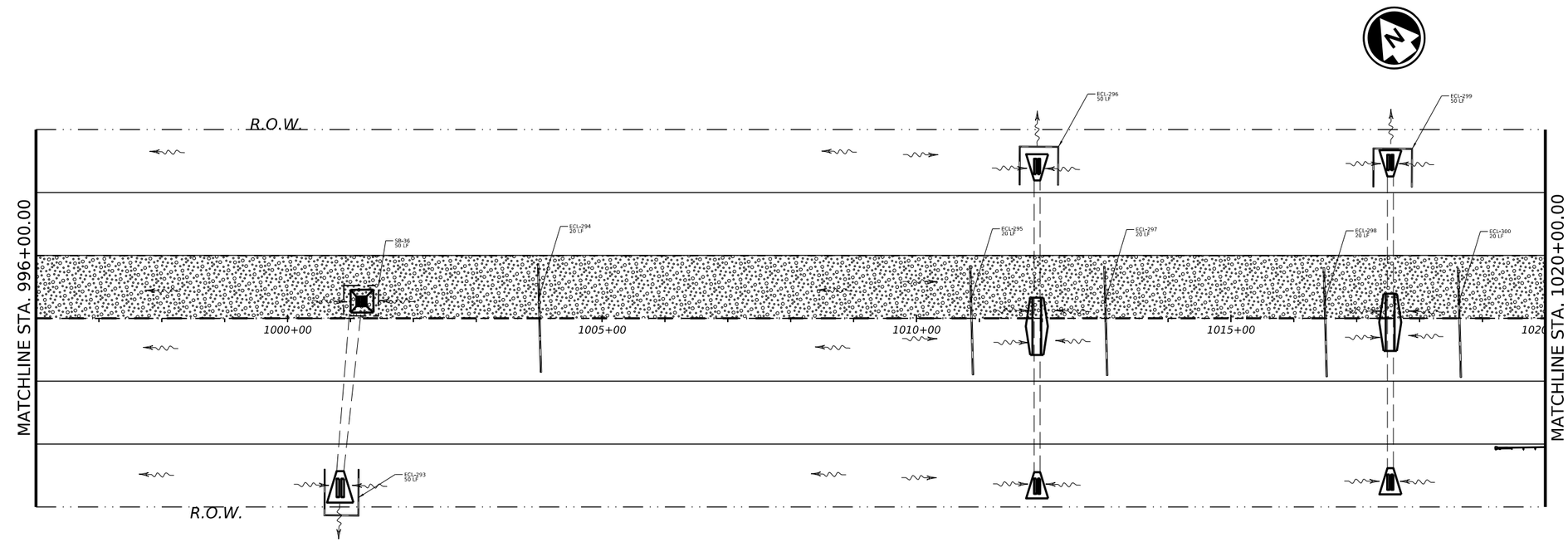

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 20 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		233

DATE: 2/2/2024 3:54:56 PM
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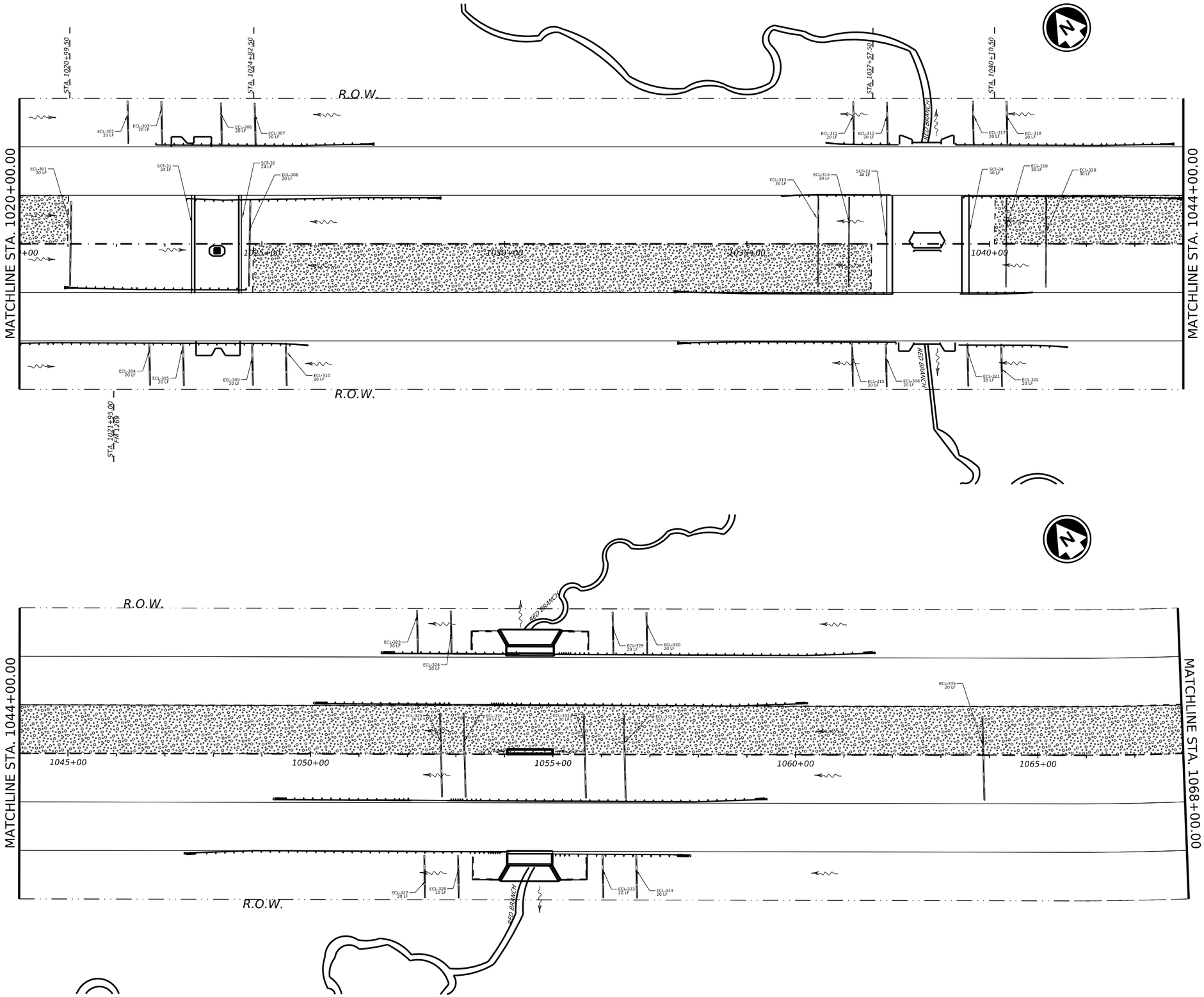

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 21 OF 22

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		234

DATE: 2/2/2024 3:55:15 PM
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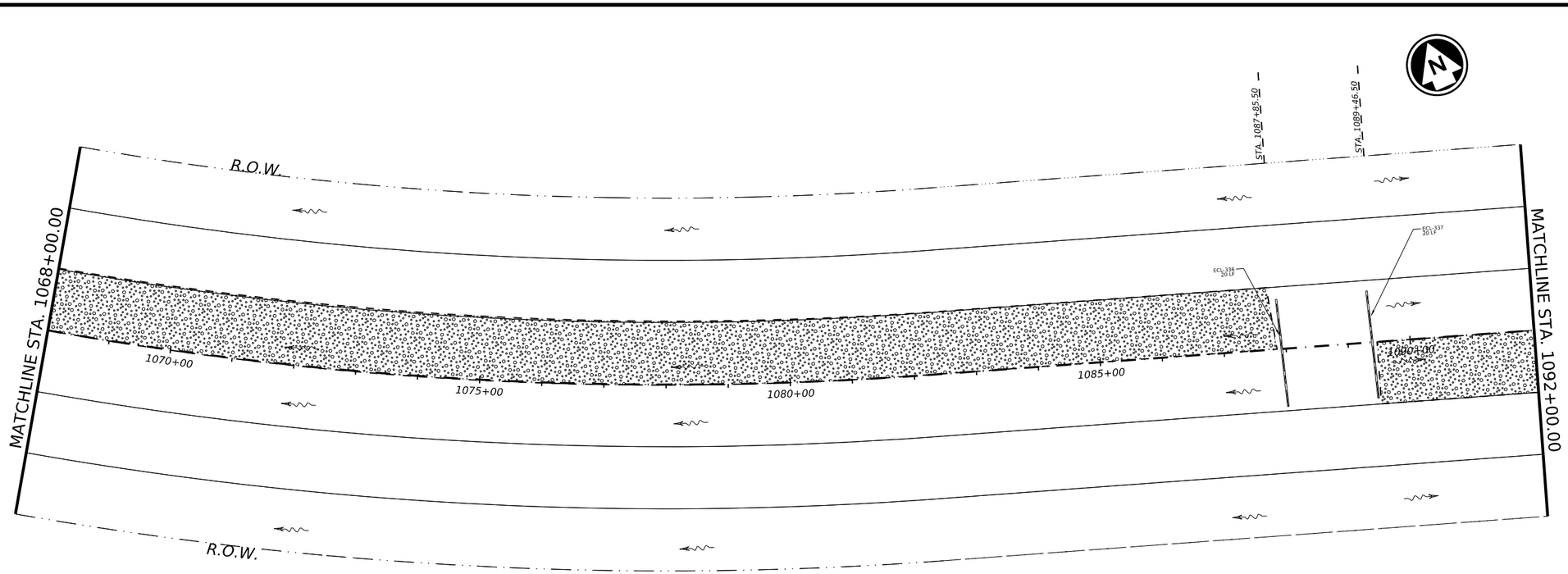
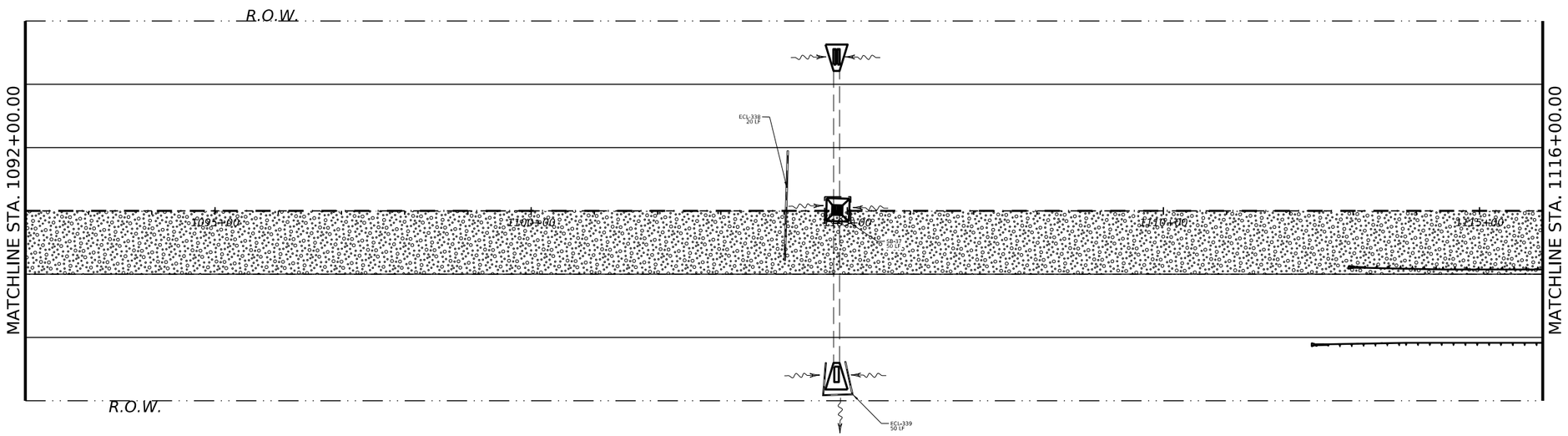


LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA



STATE OF TEXAS
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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 22 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		235

DATE: 2/2/2024 3:55:41 PM
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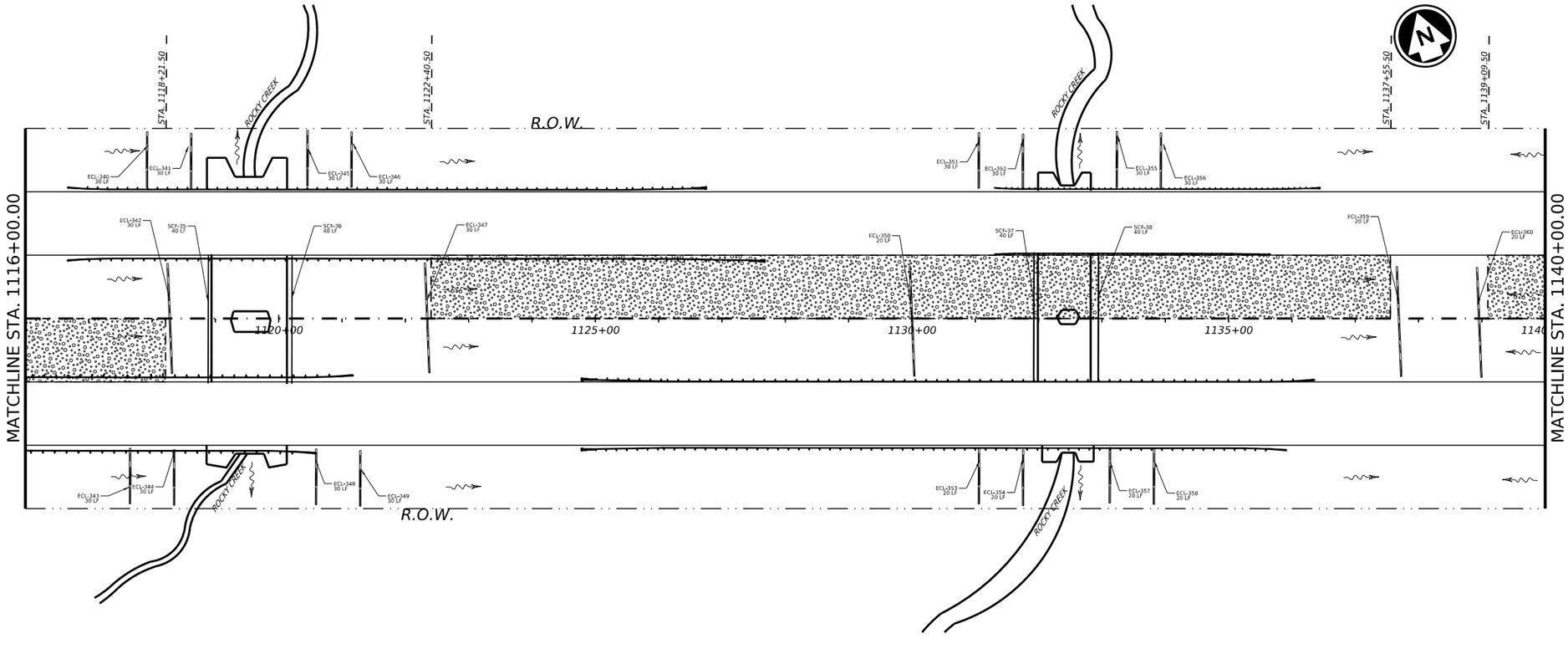

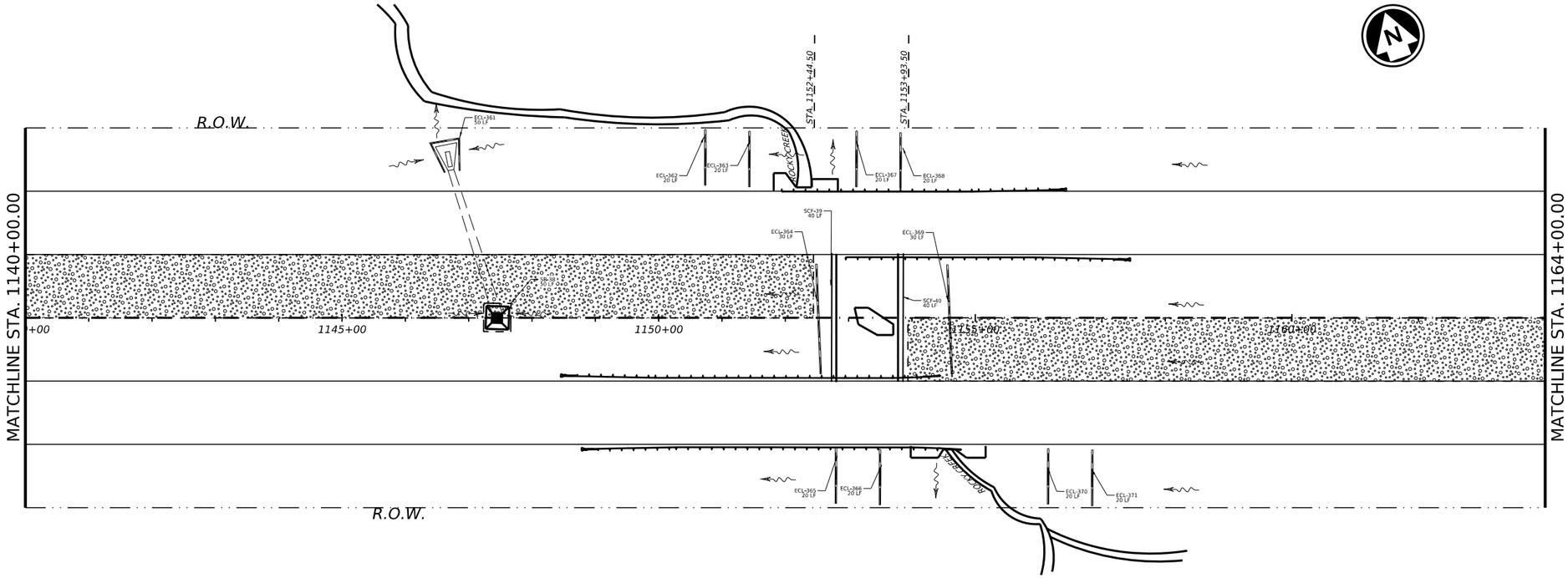

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 23 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		236

DATE: 2/2/2024 3:56:31 PM
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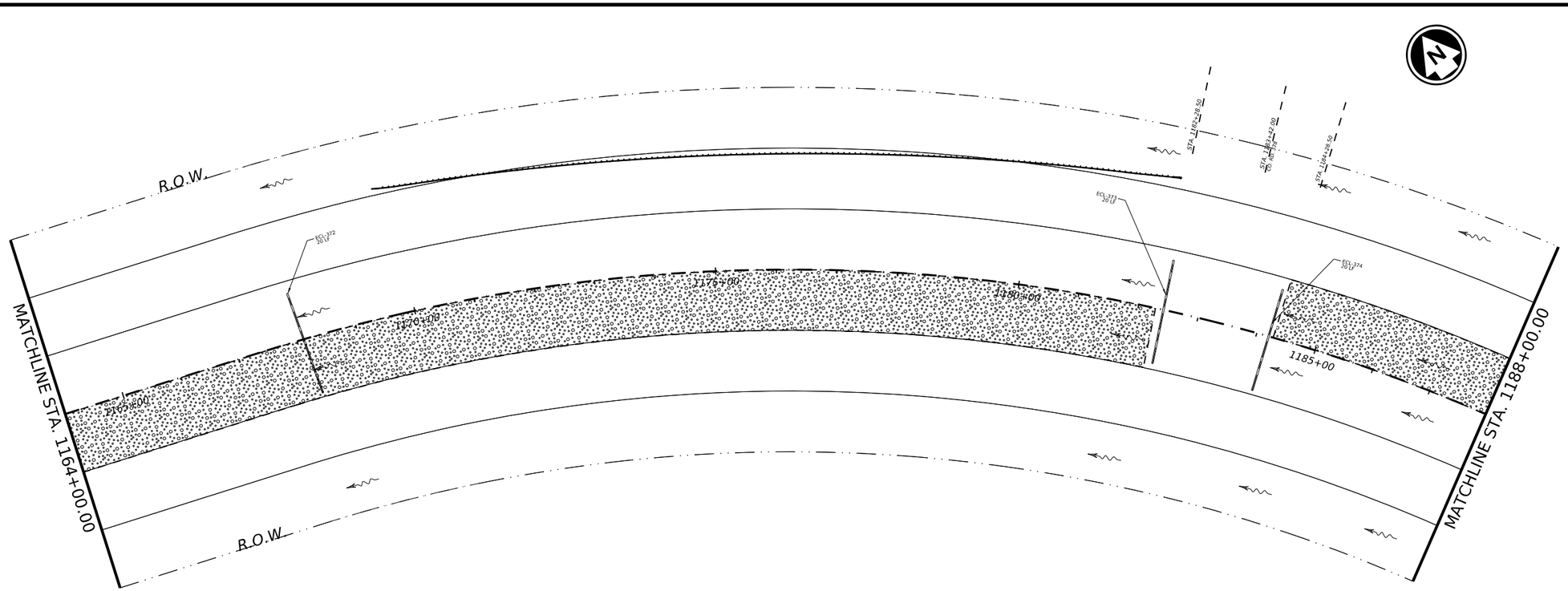

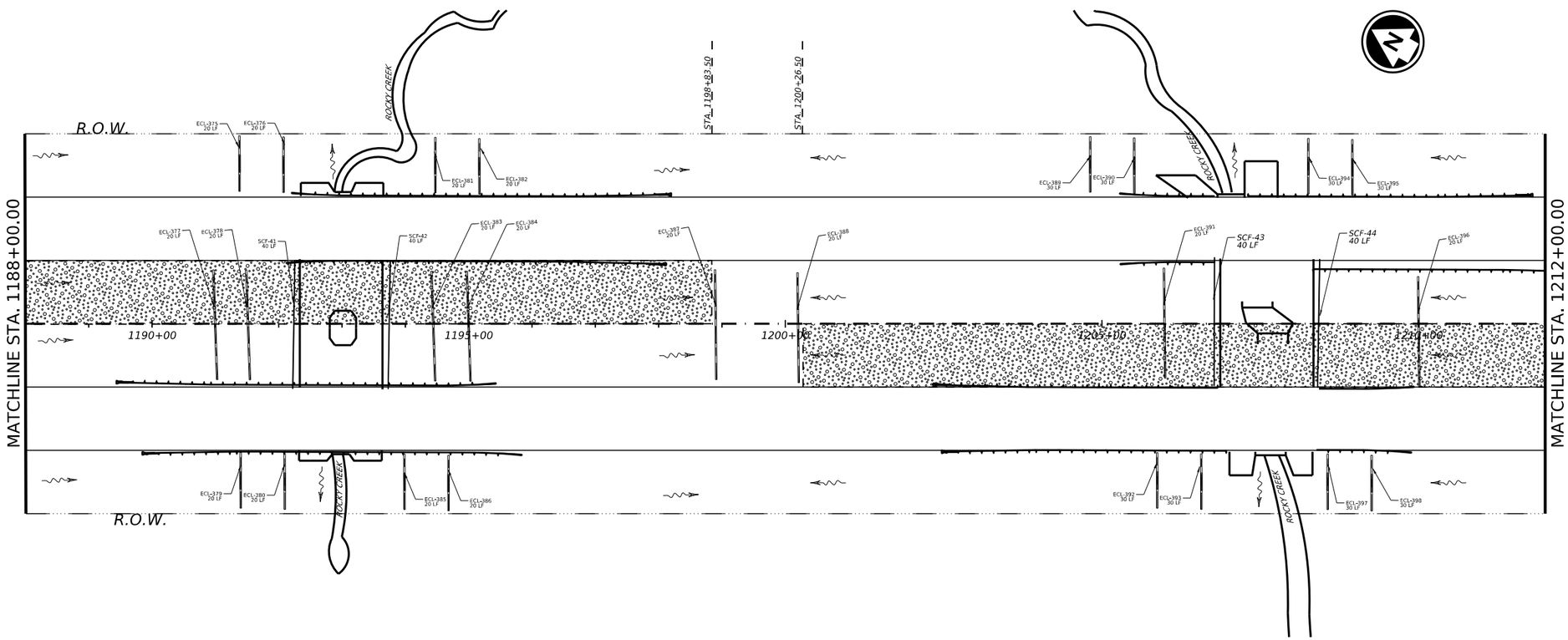

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 24 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		237

DATE: 2/2/2024 5:05:42 PM
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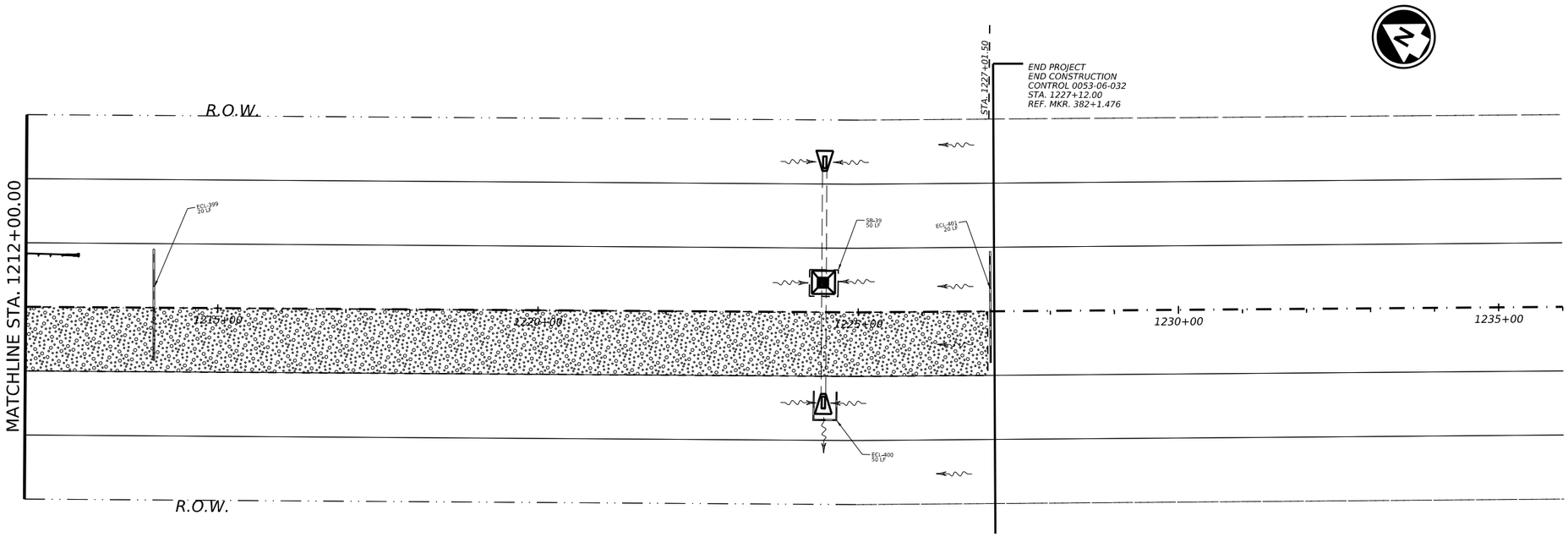

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- SEDIMENT CONTROL FENCE
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 84 South)
SCALE: 1"=200'

SHEET 25 OF 25

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		238

DATE: 2/2/2024 3:57:19 PM
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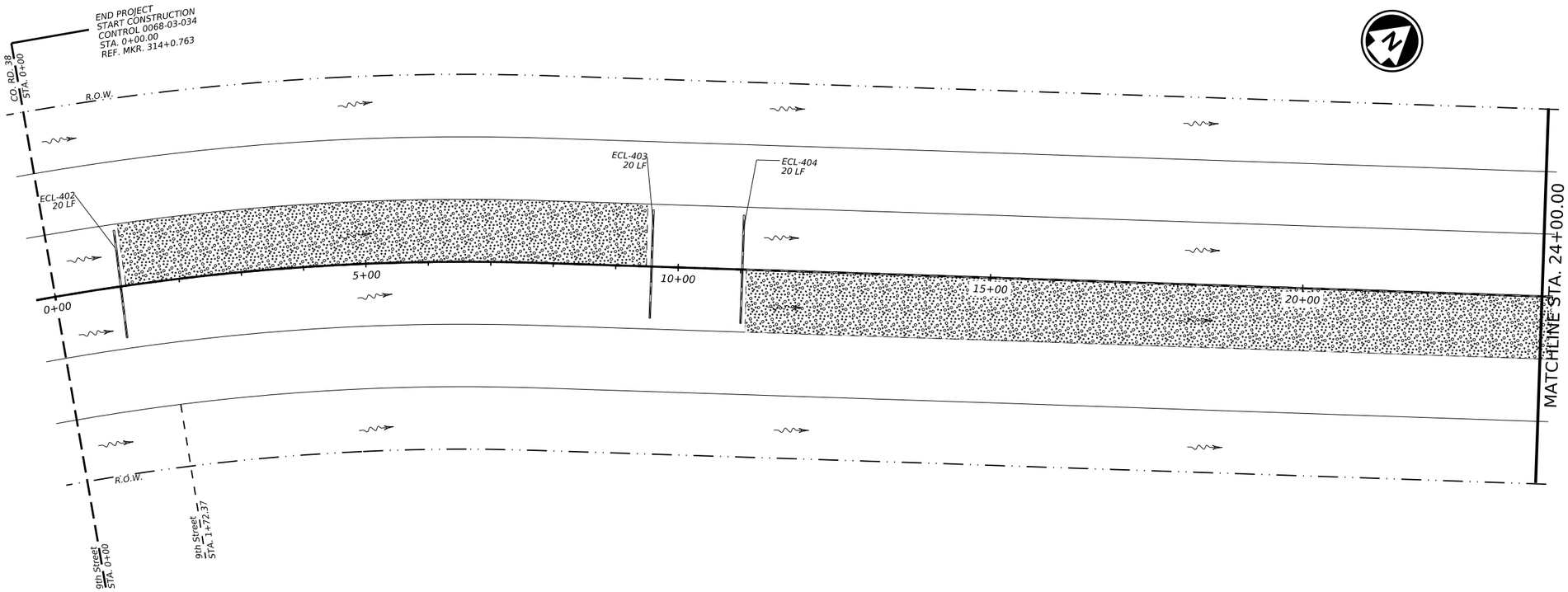

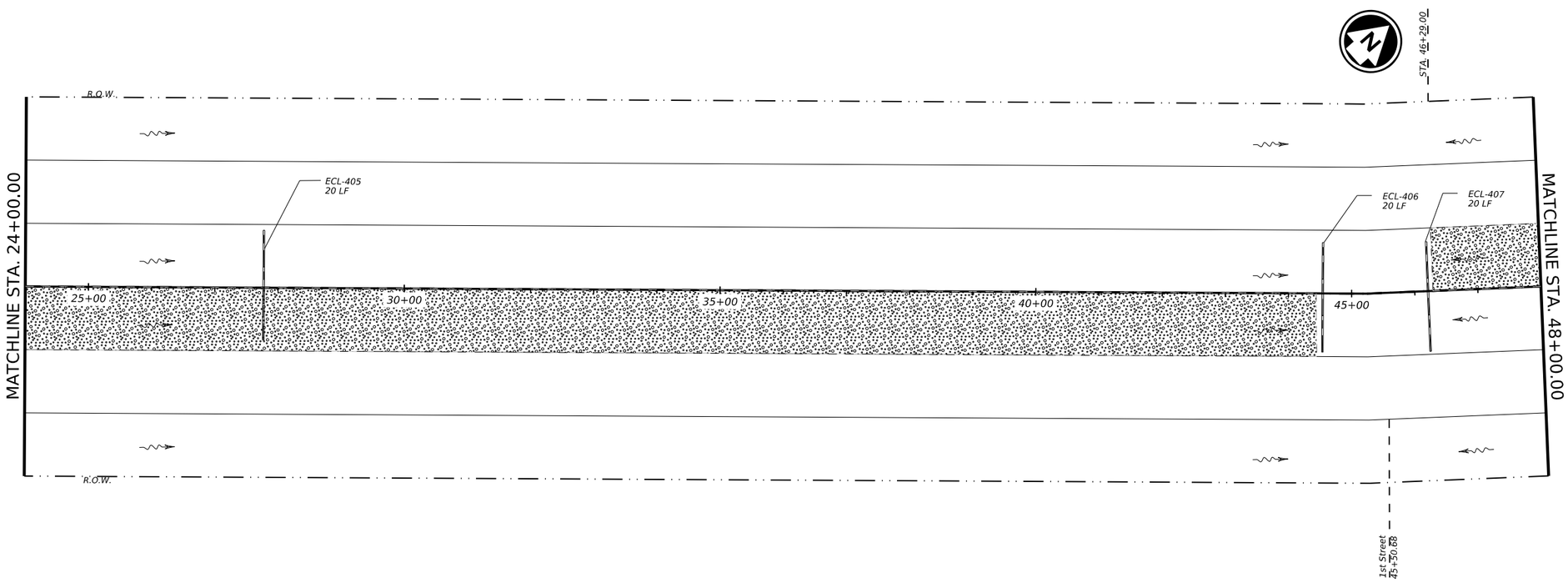

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

SHEET 1 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		239

DATE: 2/2/2024 4:10:54 PM
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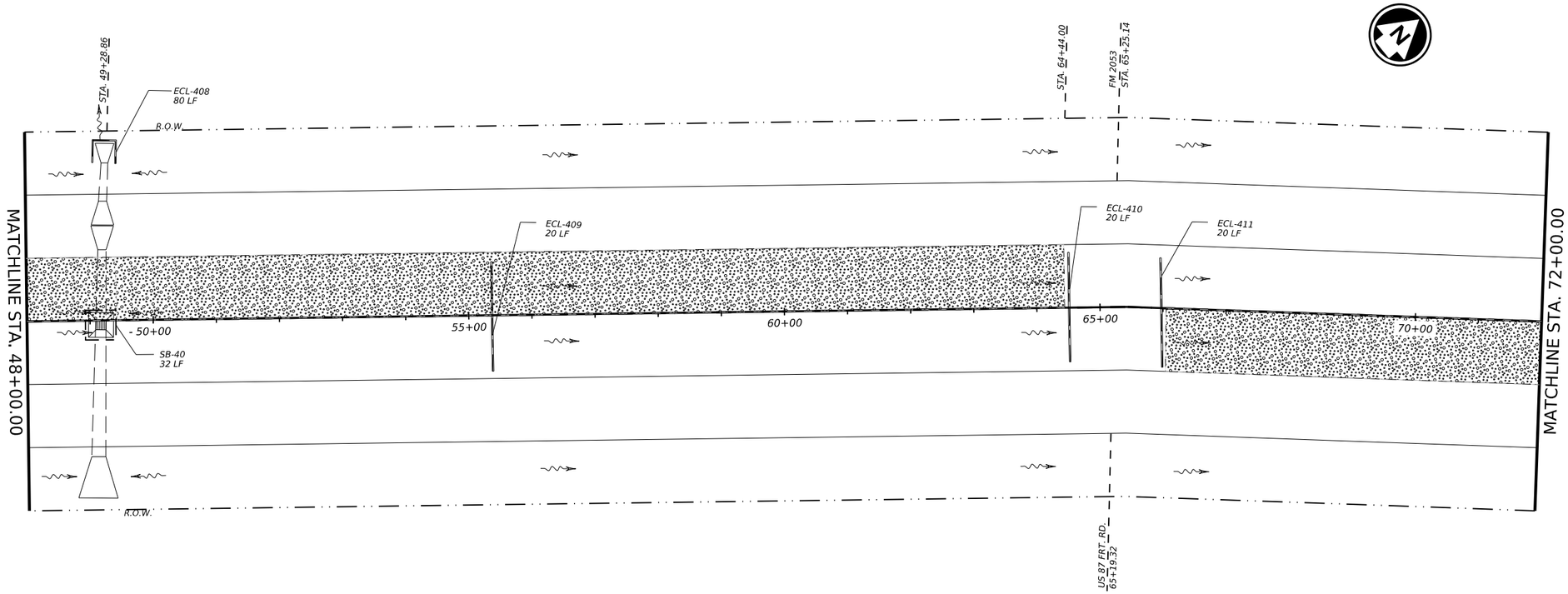

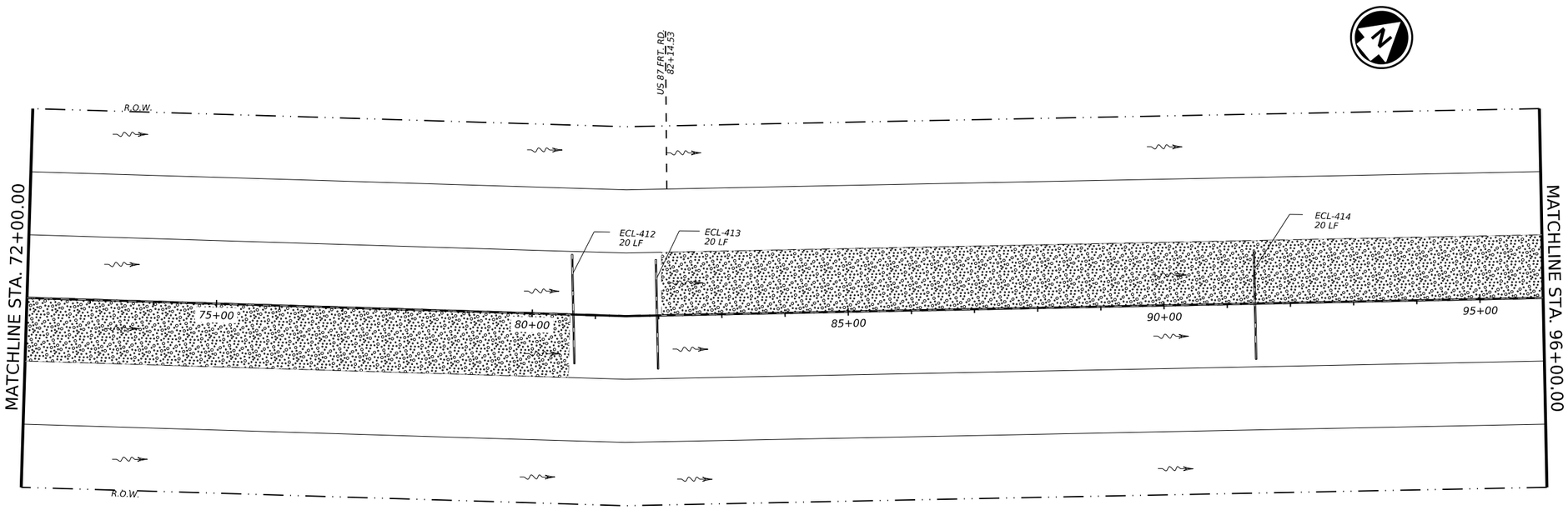

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		240

DATE: 2/2/2024 4:11:39 PM
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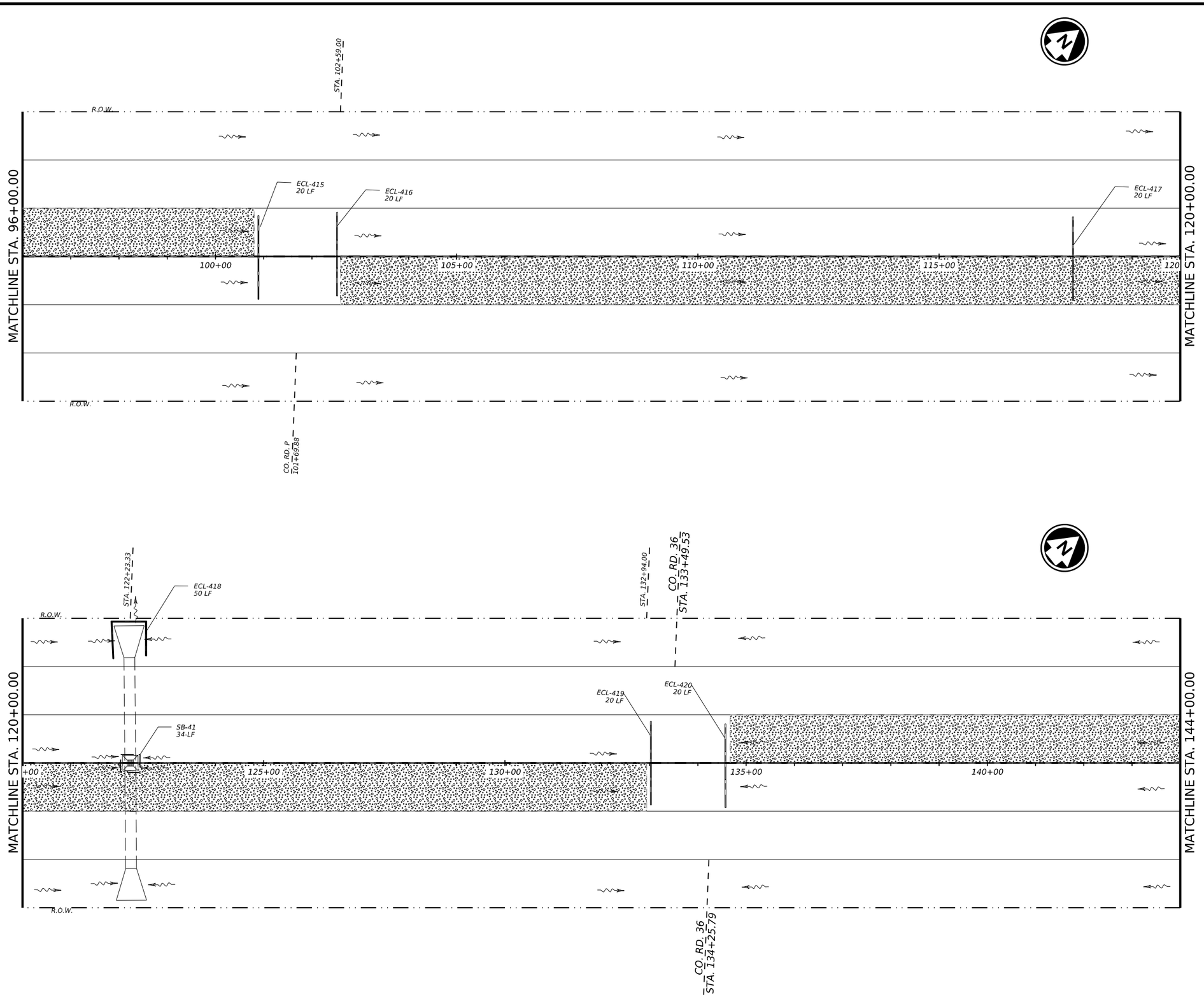

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		241

DATE: 2/2/2024 4:11:54 PM
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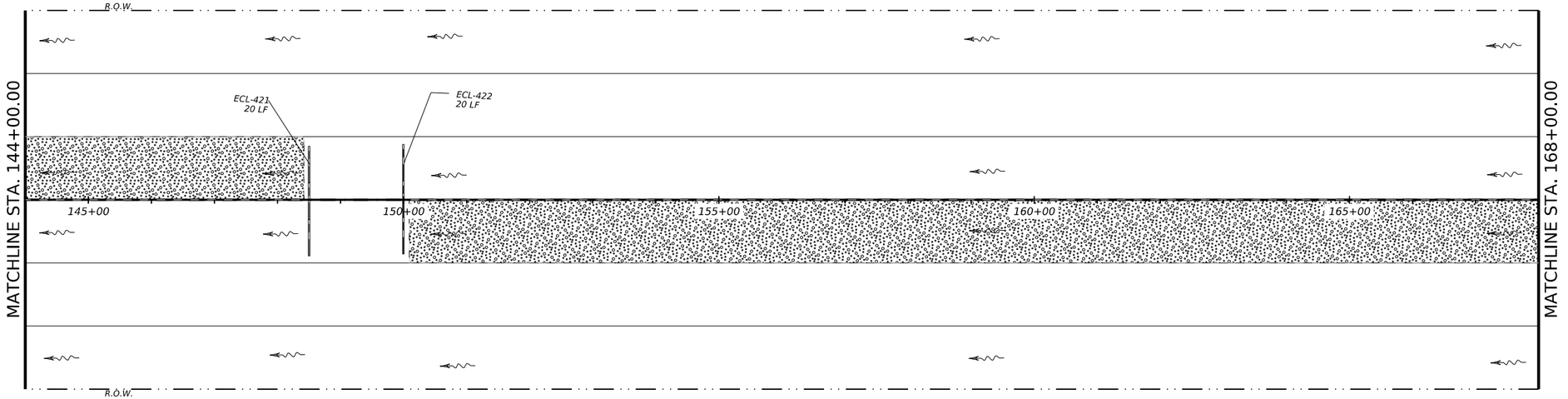

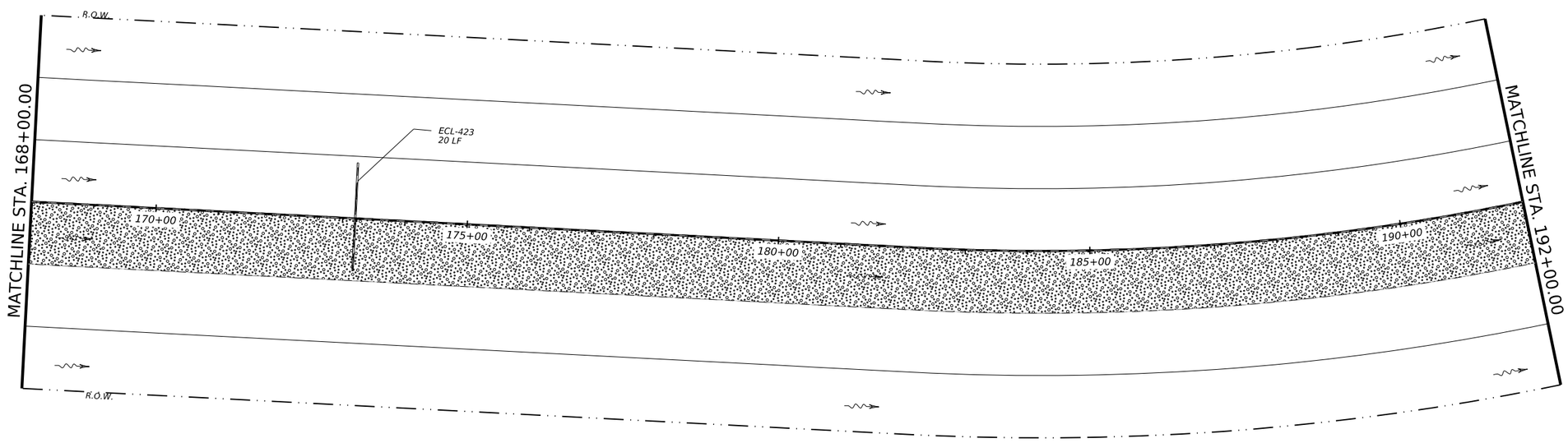

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

SHEET 4 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		242

DATE: 2/2/2024 4:12:10 PM
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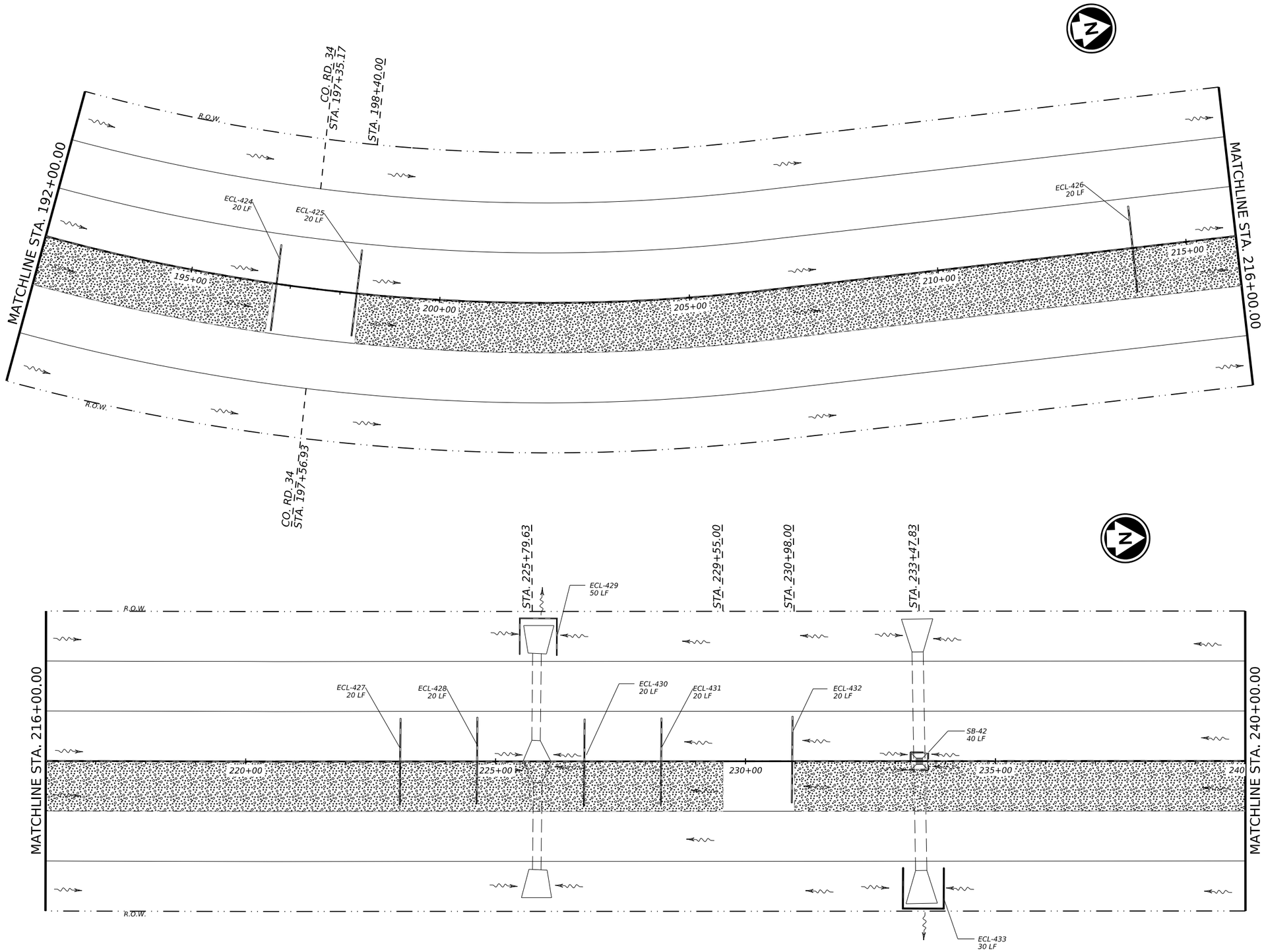

STATE OF TEXAS
SHELLEY C. HARRIS
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PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

SHEET 5 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		243

DATE: 2/2/2024 4:12:29 PM
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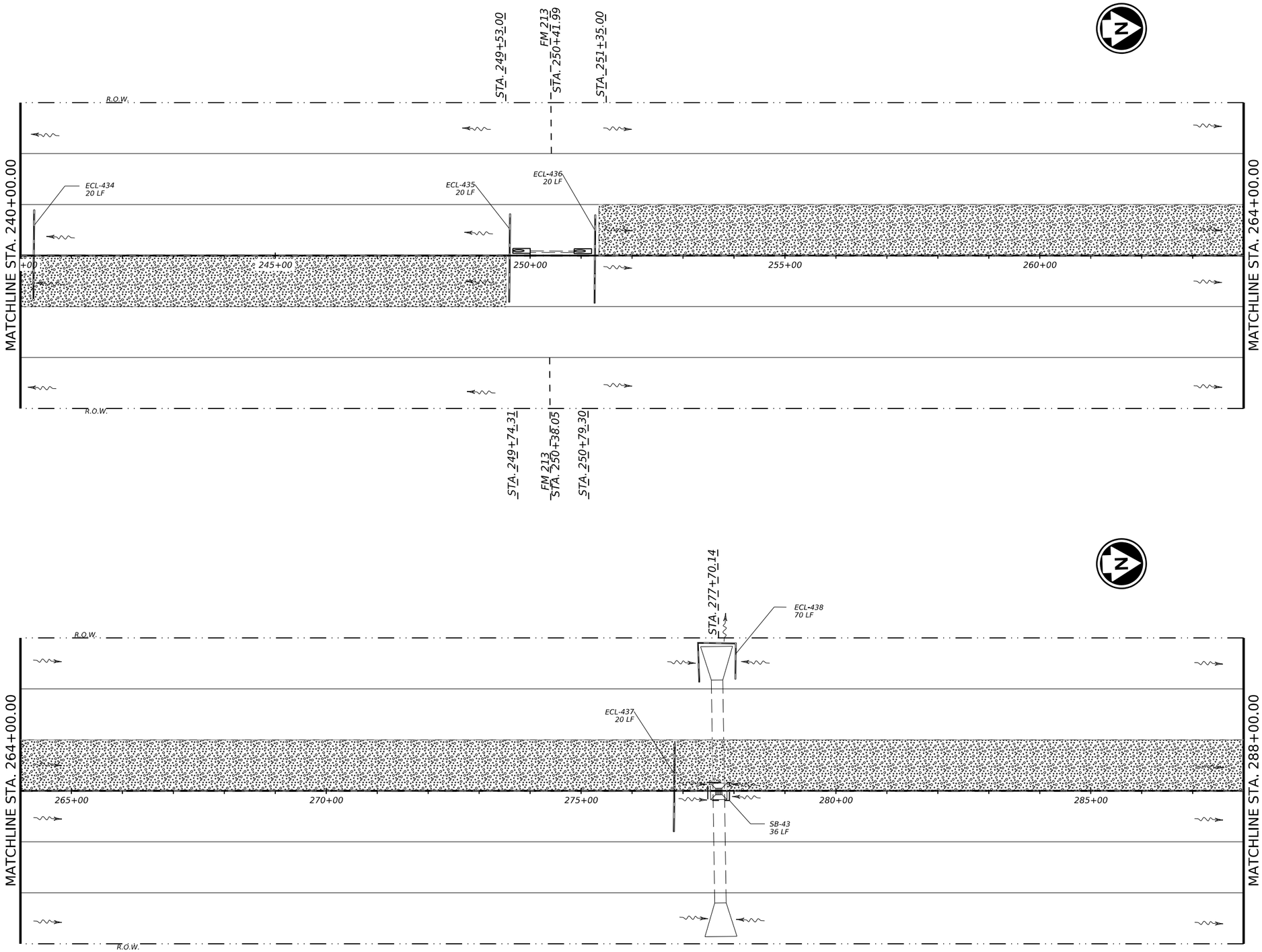

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

SHEET 6 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		244

DATE: 2/2/2024 4:12:43 PM
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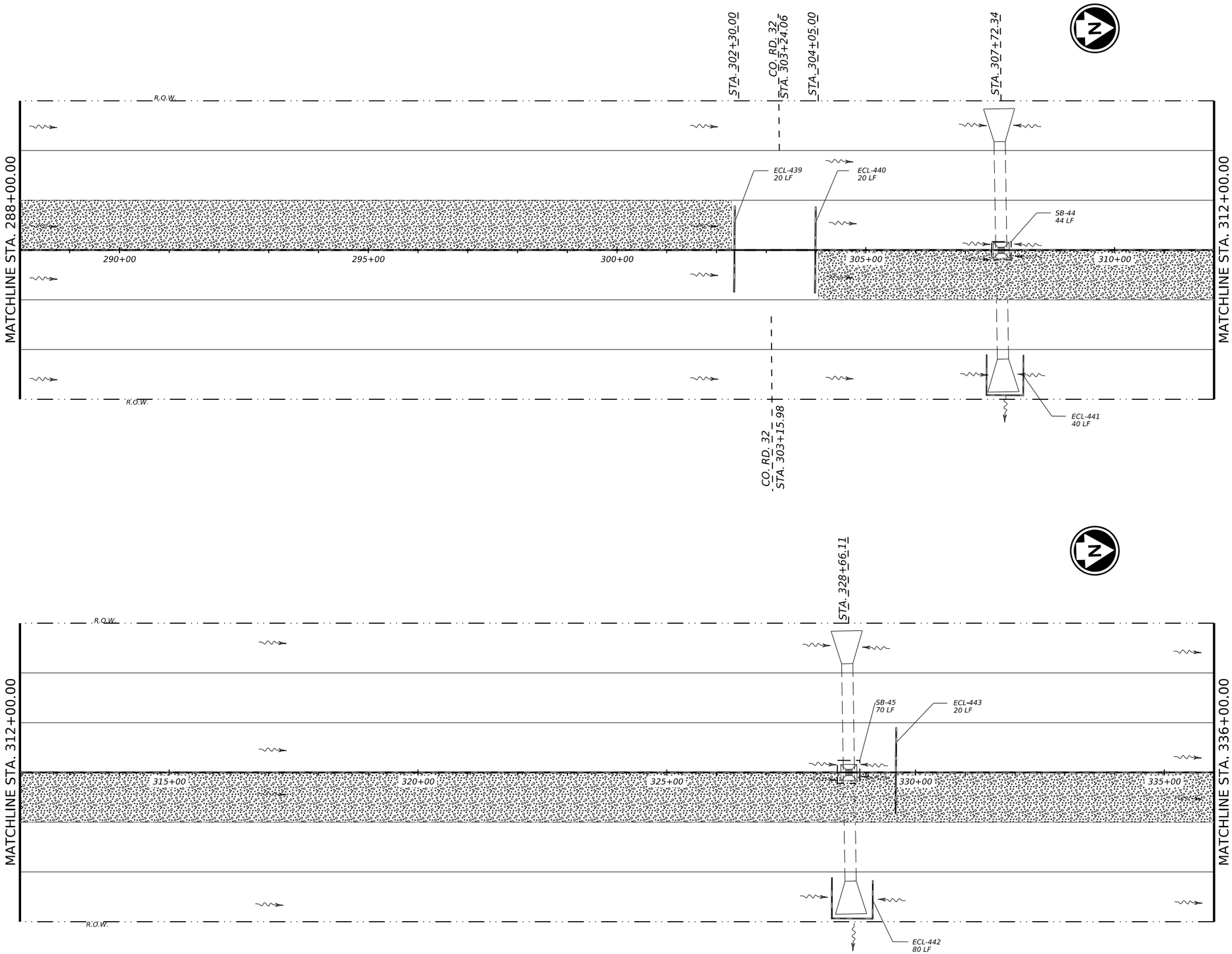

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

SHEET 7 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		245

DATE: 2/2/2024 4:12:54 PM
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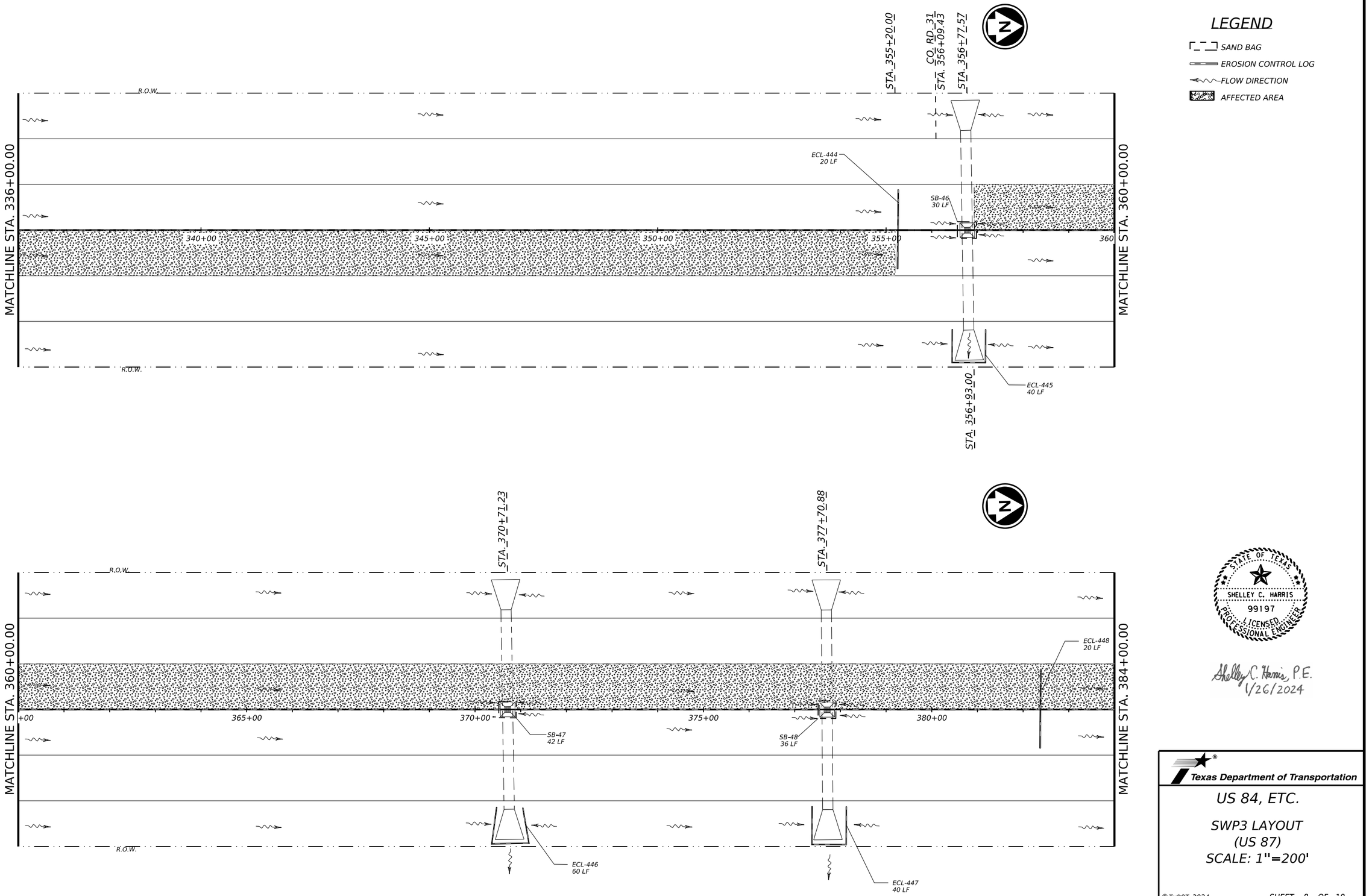

STATE OF TEXAS
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Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

SHEET 8 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		246

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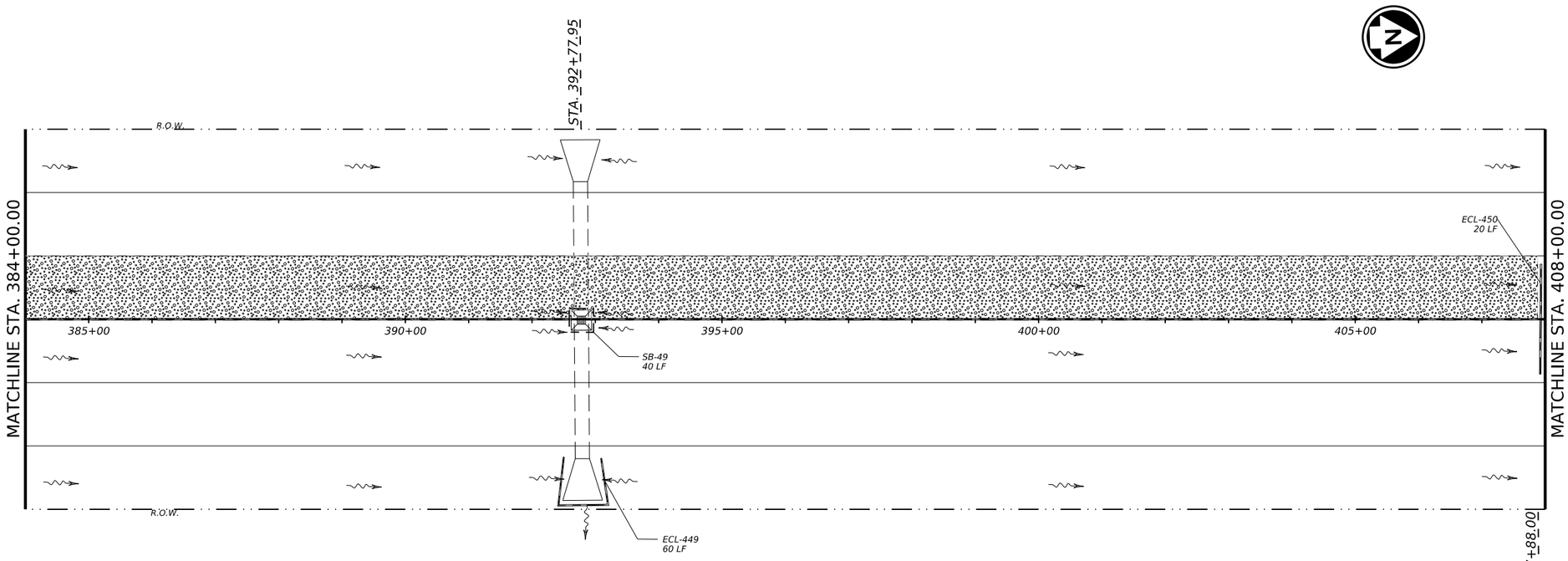
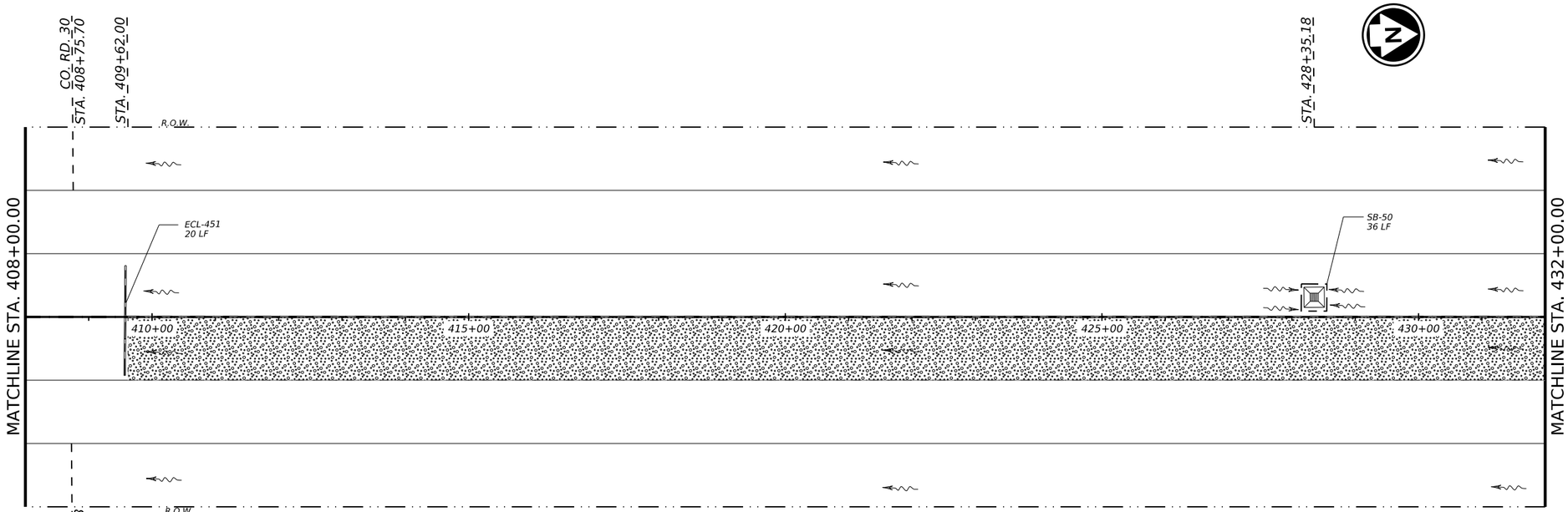


LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA



STATE OF TEXAS
SHELLEY C. HARRIS
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PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		247

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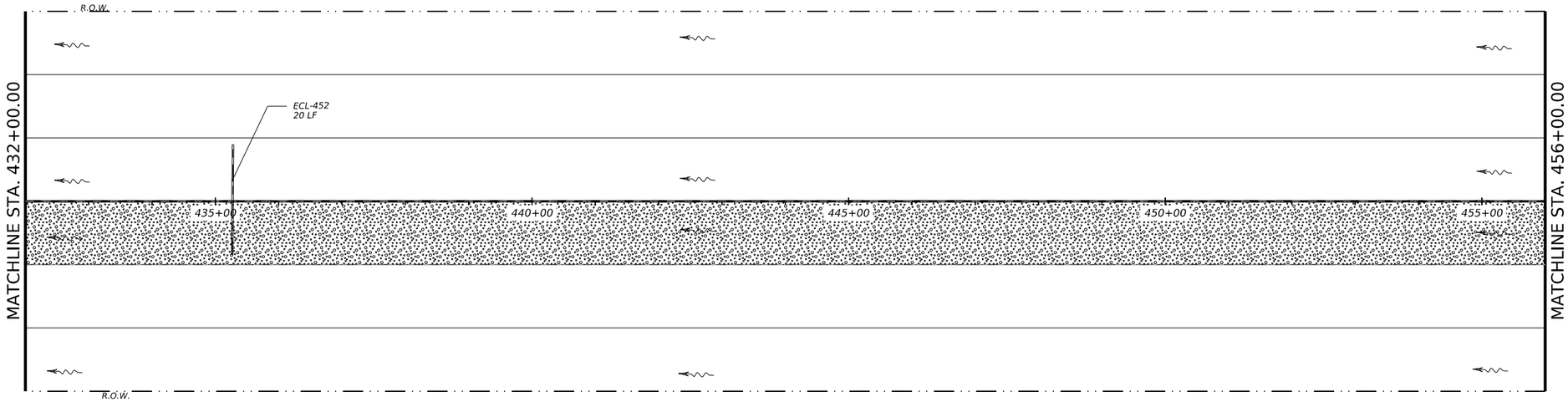

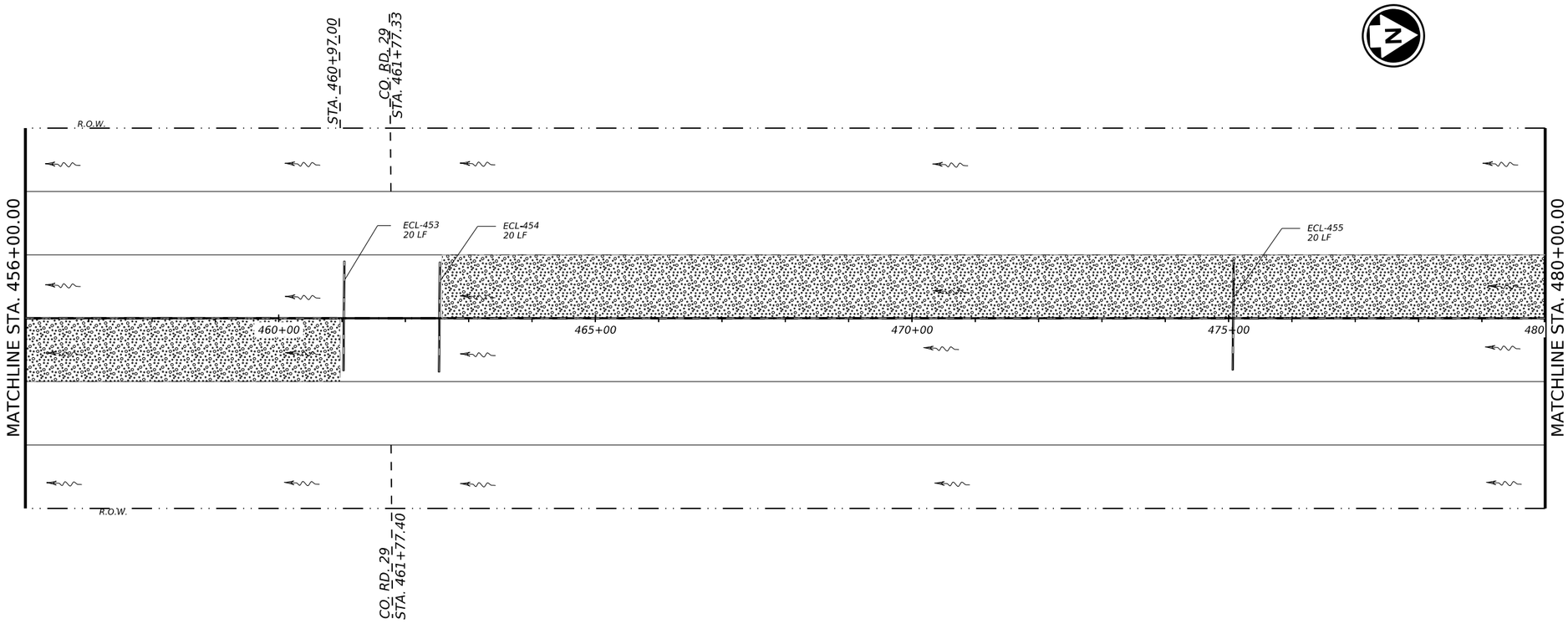

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		248

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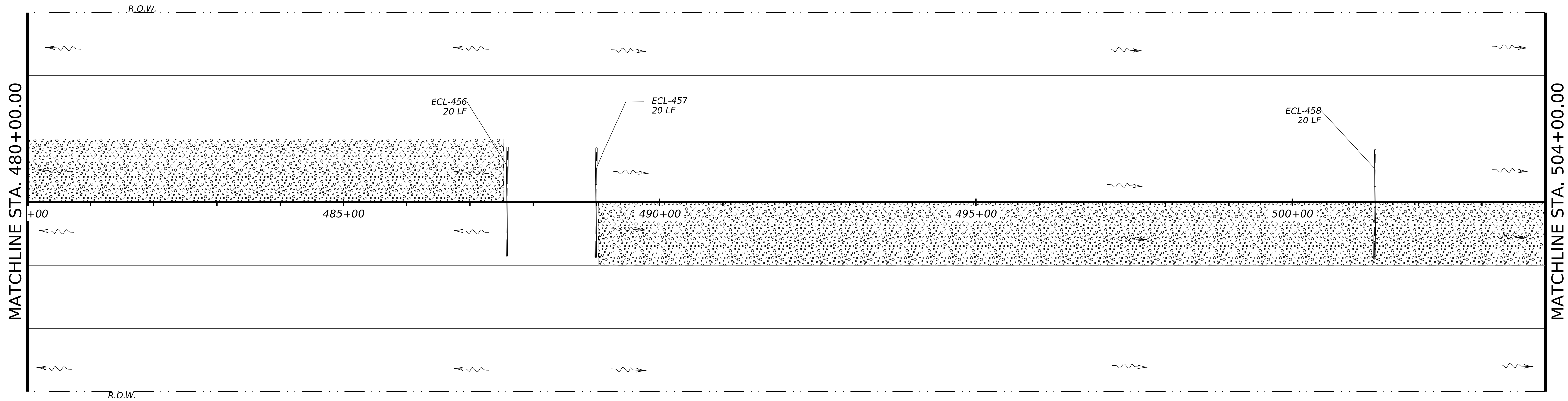
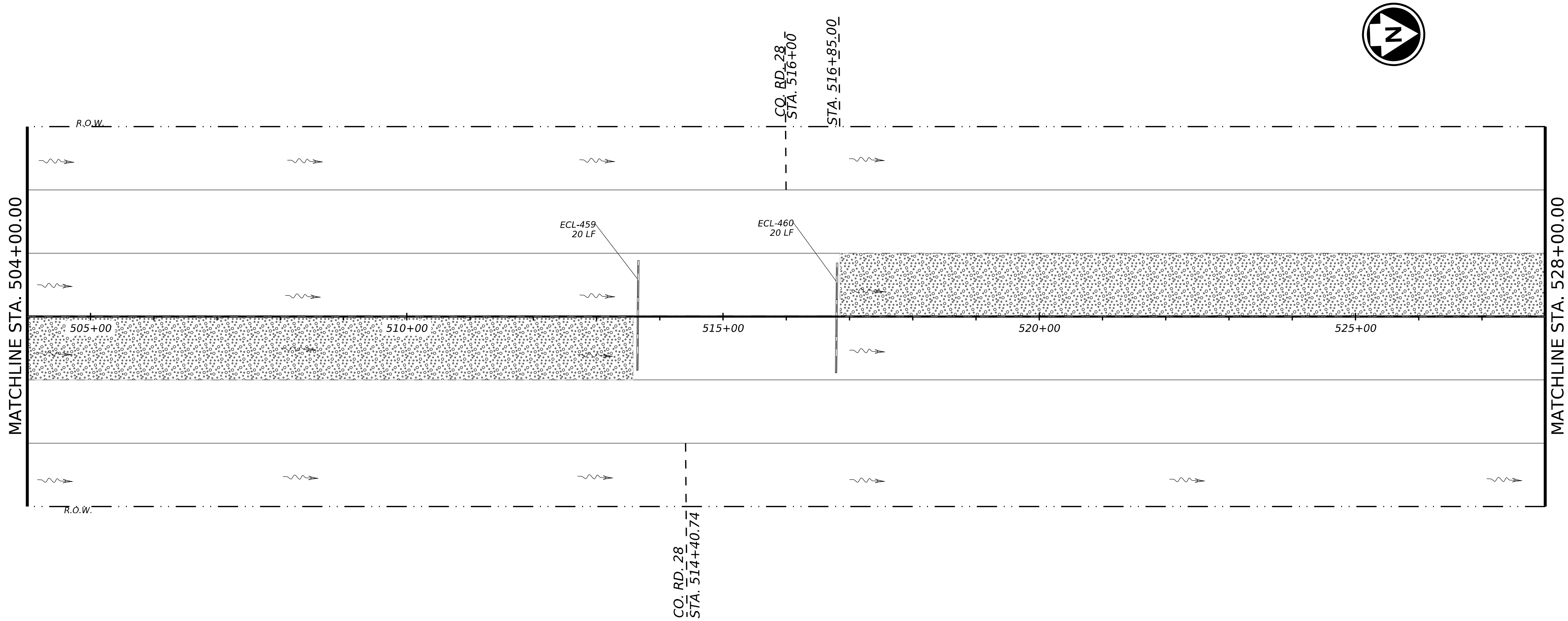
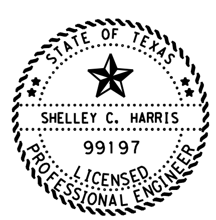




LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA



Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1''=200'

SHEET 11 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		249

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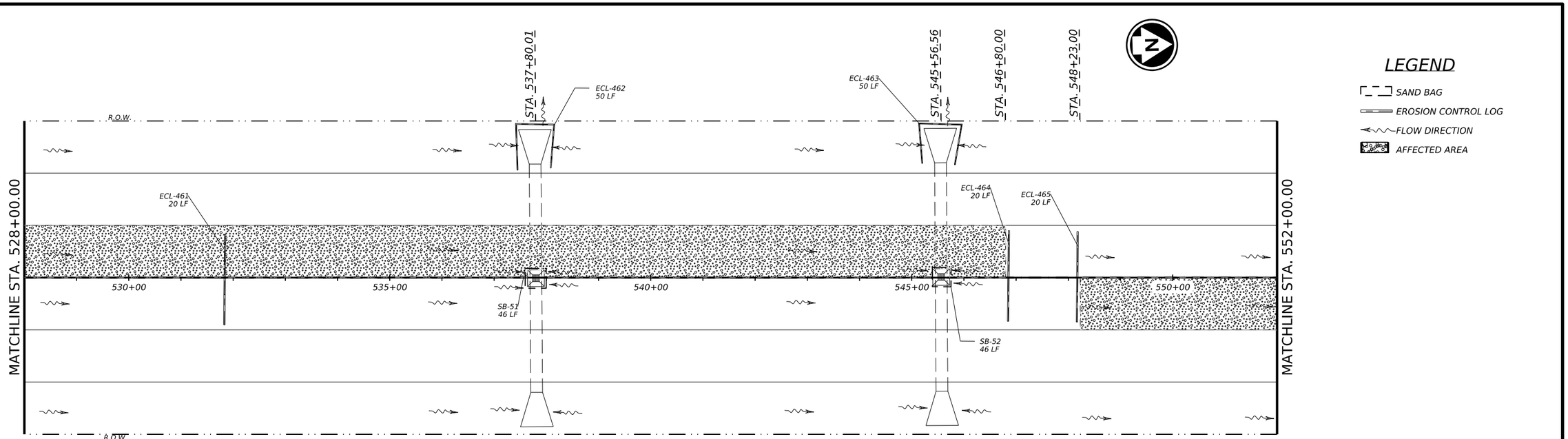

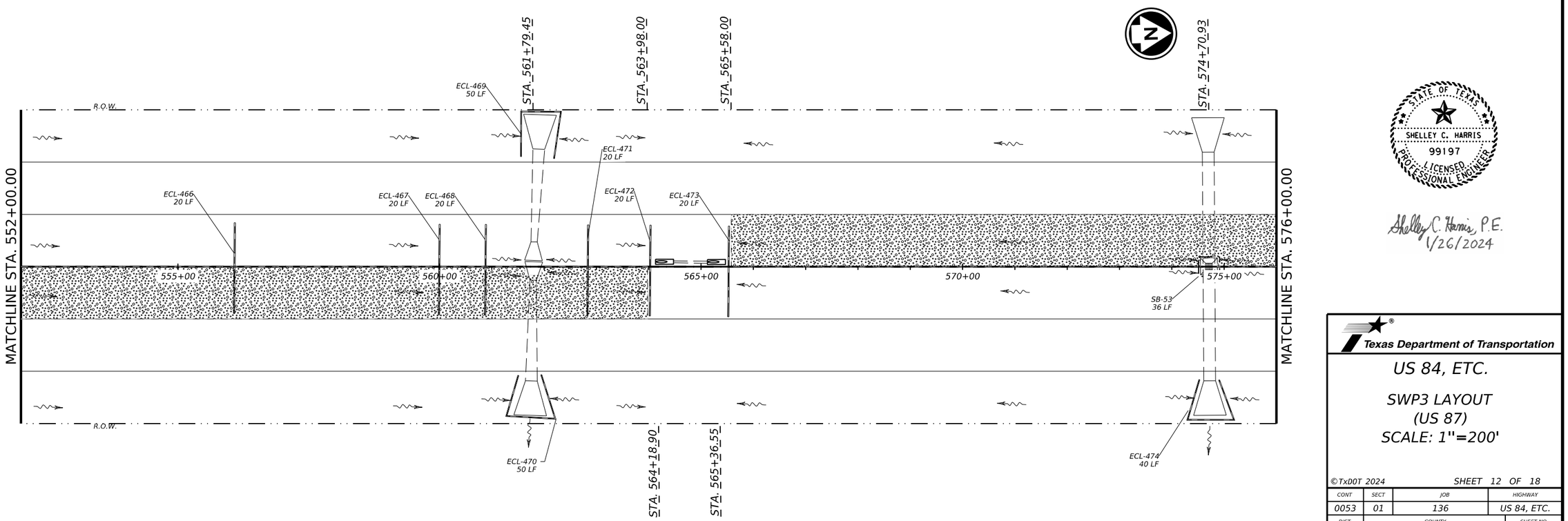

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

SHEET 12 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		250

DATE: 2/2/2024 4:14:02 PM
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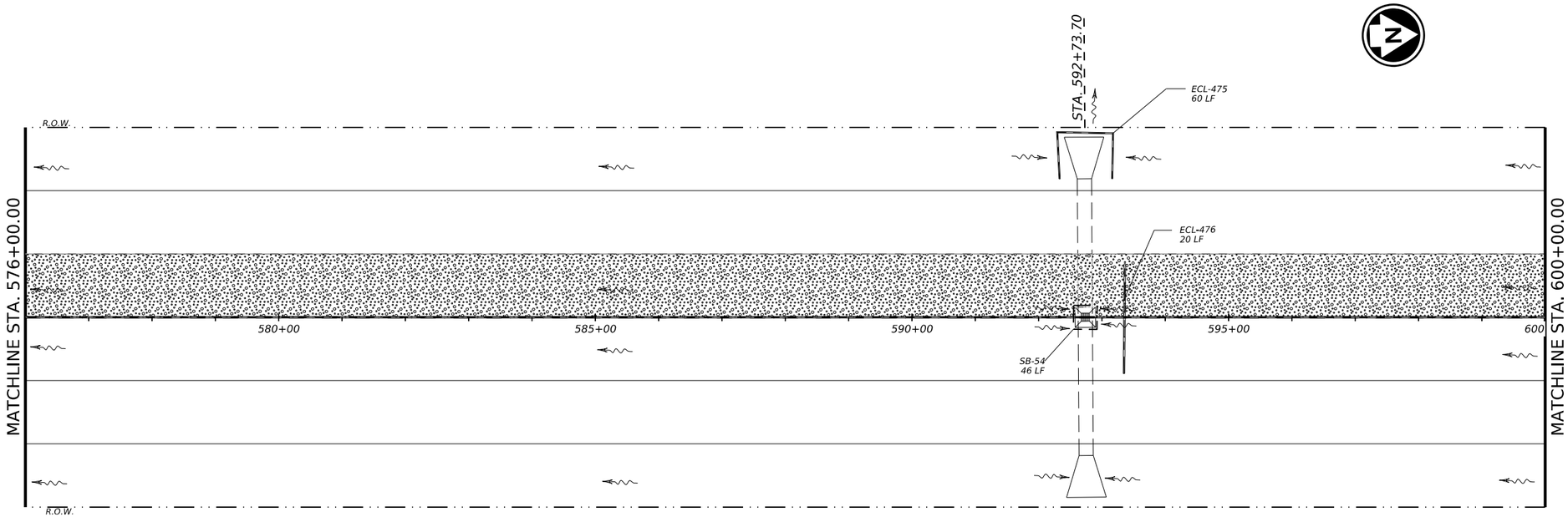

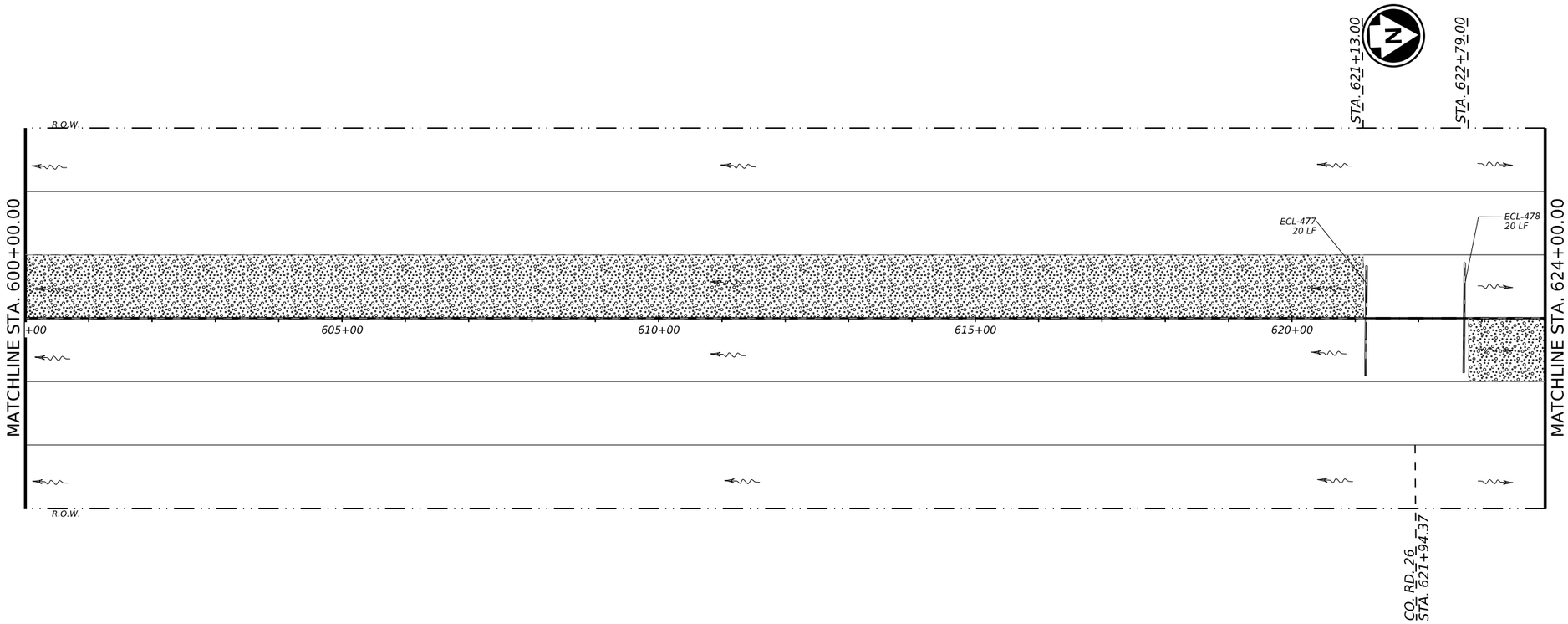

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

SHEET 13 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		251

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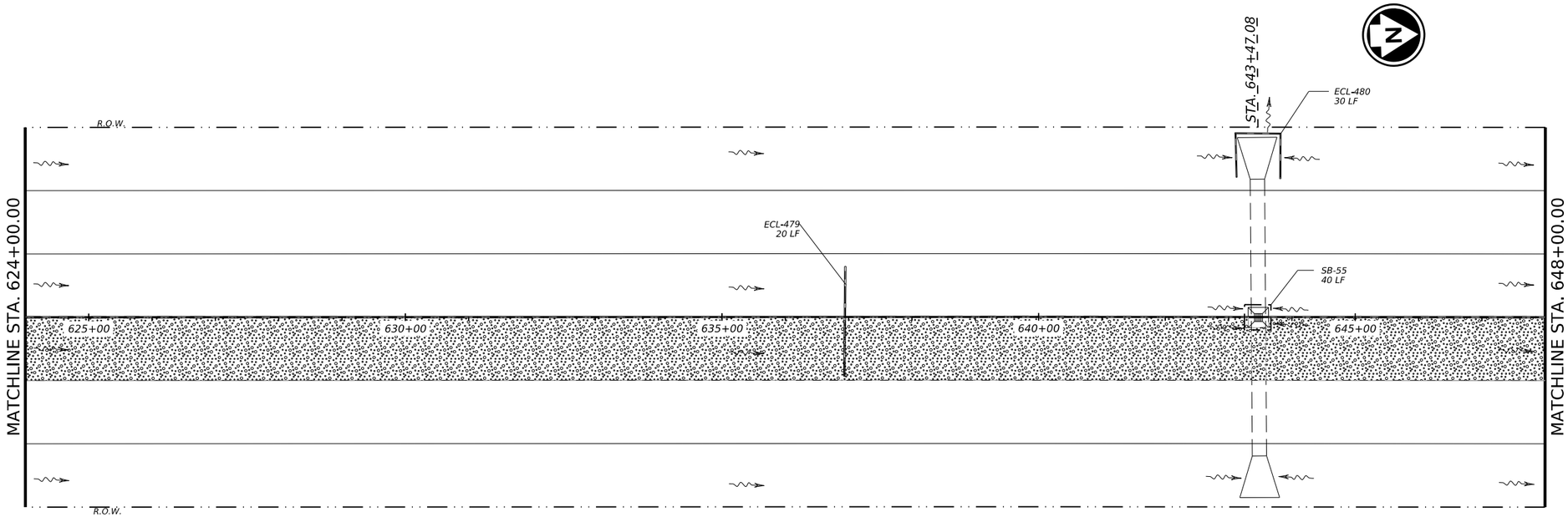

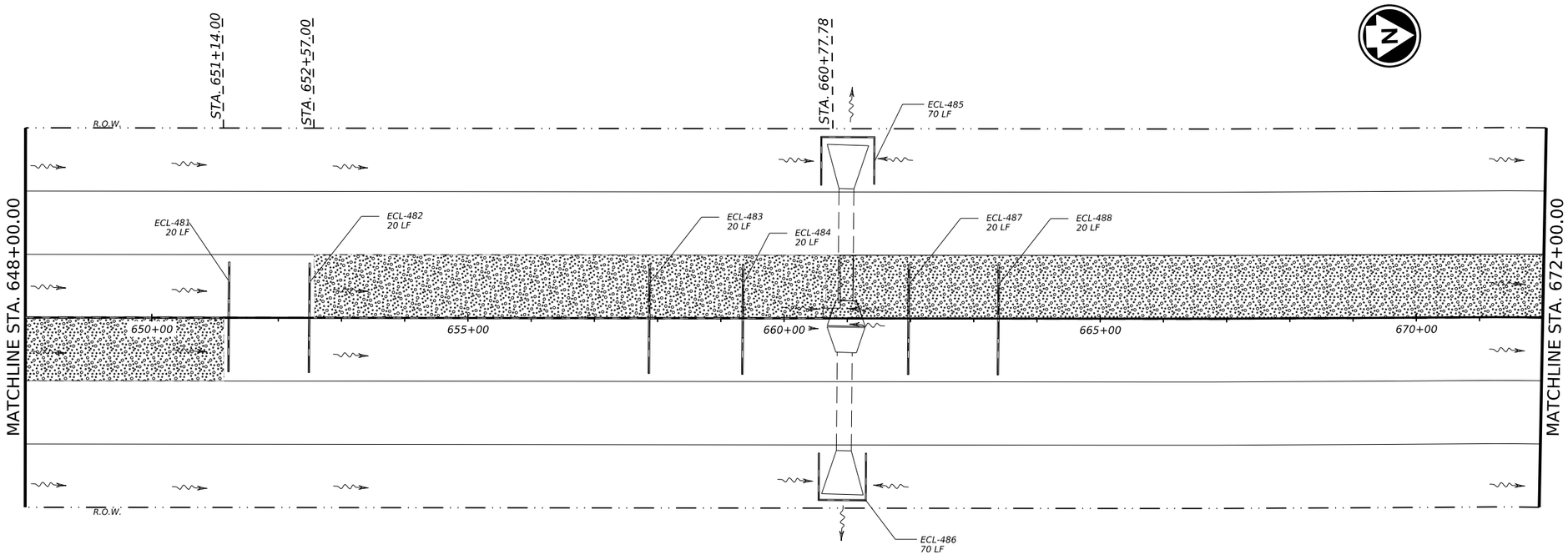

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

SHEET 14 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		252

DATE: 2/2/2024 4:14:34 PM
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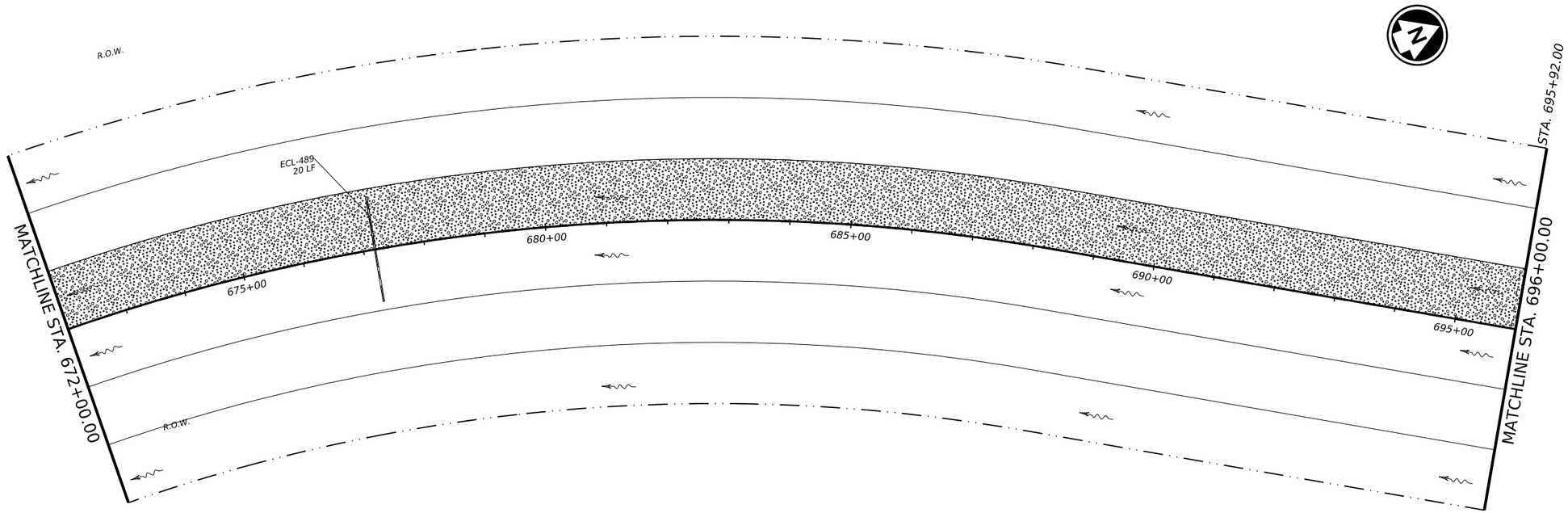

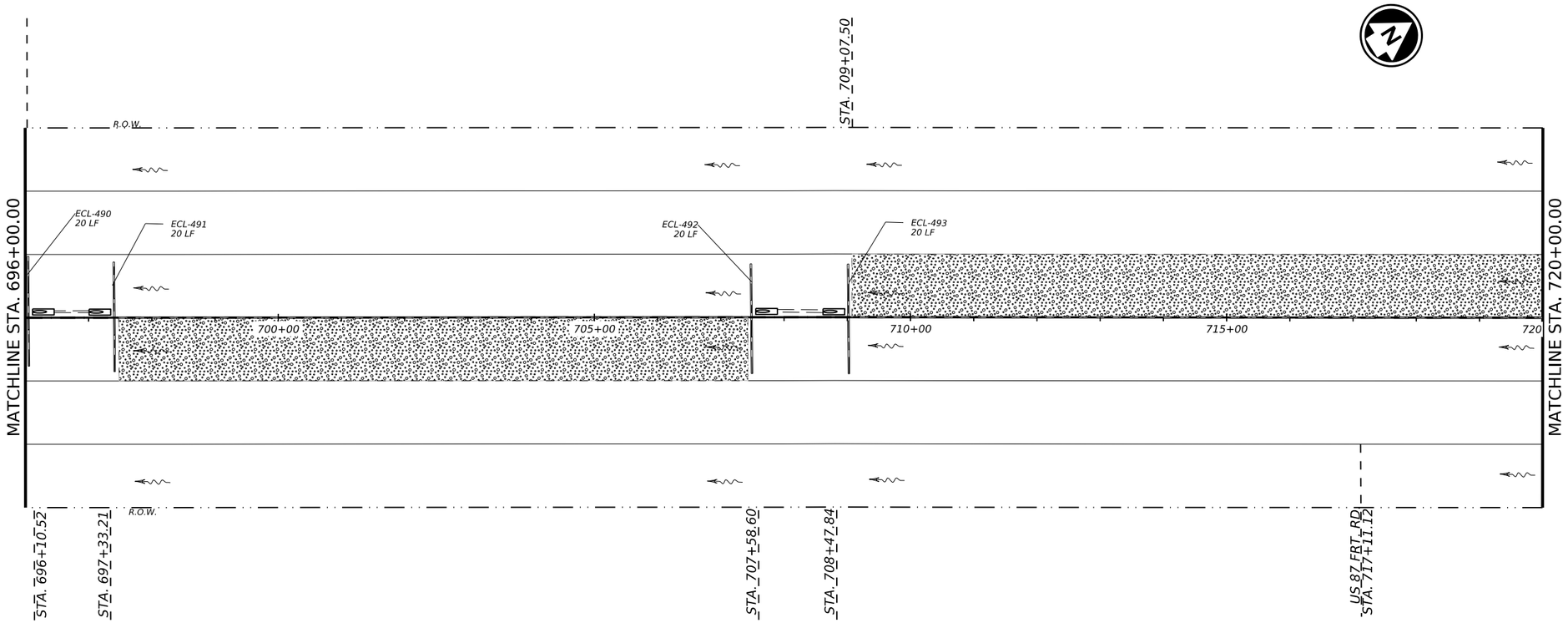

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

SHEET 15 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		253

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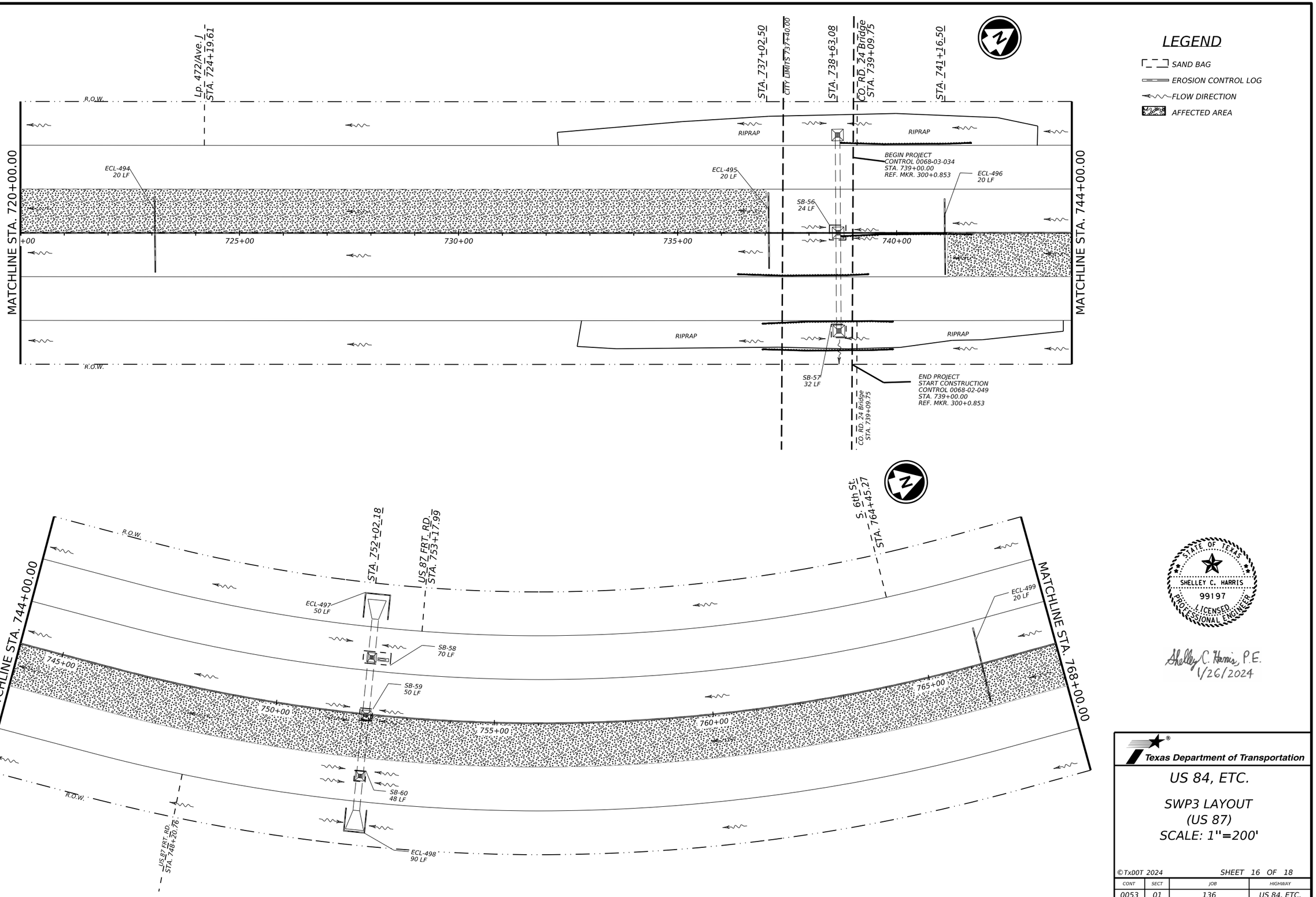


LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

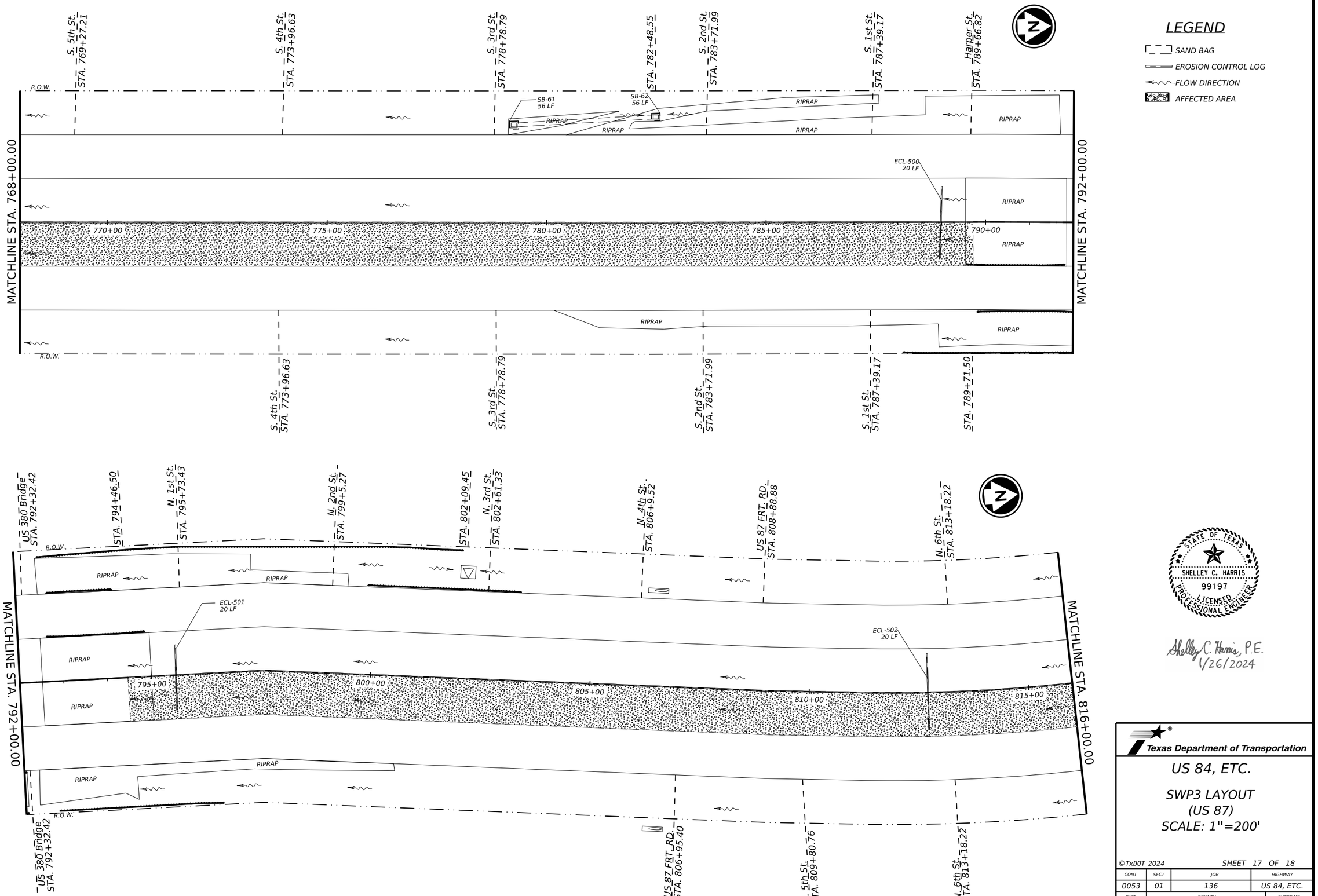
Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		254



LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

SHEET 17 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		255

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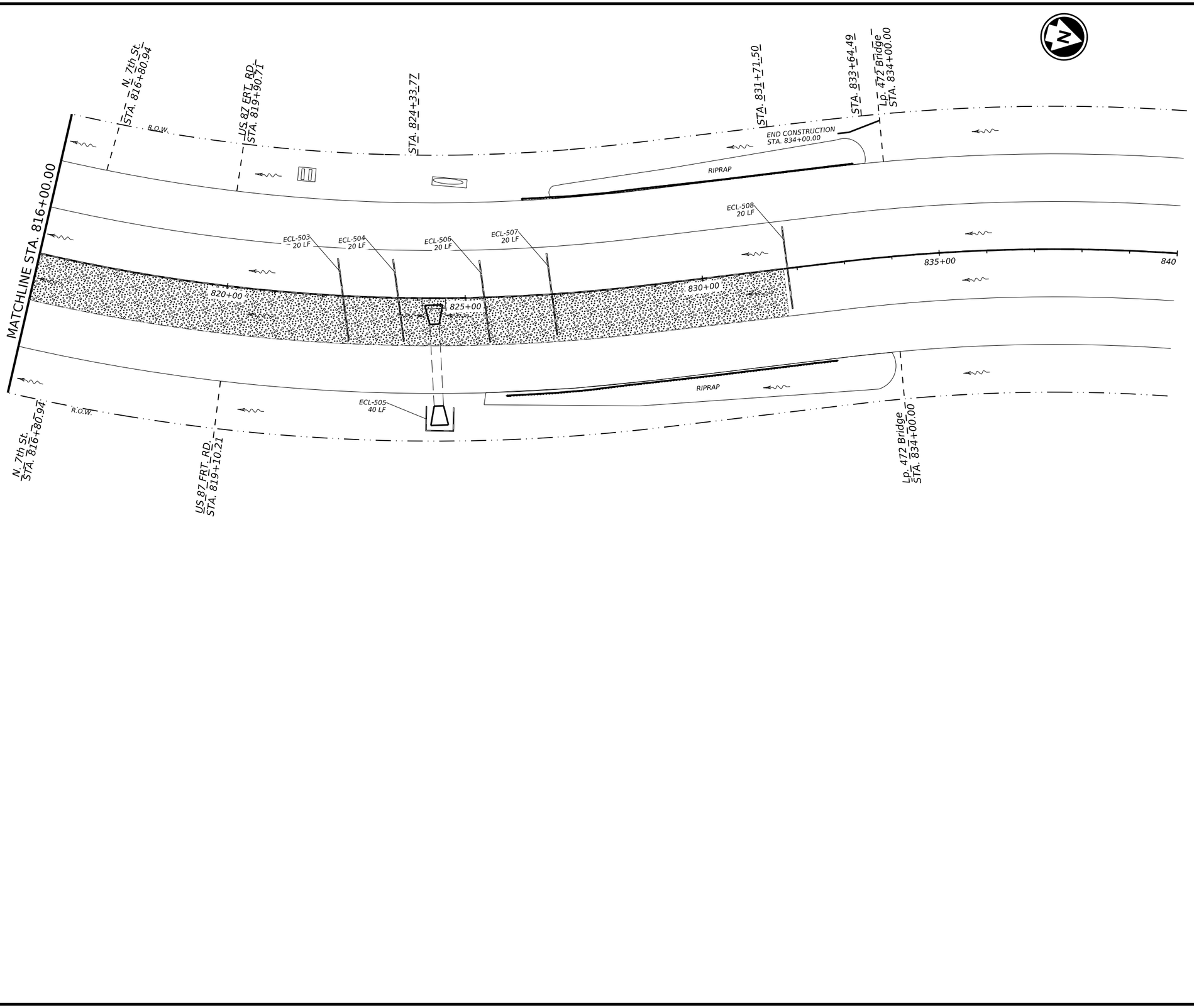

LEGEND

- SAND BAG
- EROSION CONTROL LOG
- FLOW DIRECTION
- AFFECTED AREA

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

Shelley C. Harris, P.E.
1/26/2024

Texas Department of Transportation

US 84, ETC.

SWP3 LAYOUT
(US 87)
SCALE: 1"=200'

SHEET 18 OF 18

CONT	SECT	JOB	HIGHWAY
0053	01	136	US 84, ETC.
DIST	COUNTY		SHEET NO.
LBB	LUBBOCK, ETC.		256

DATE: 2/2/2024 4:16:15 PM
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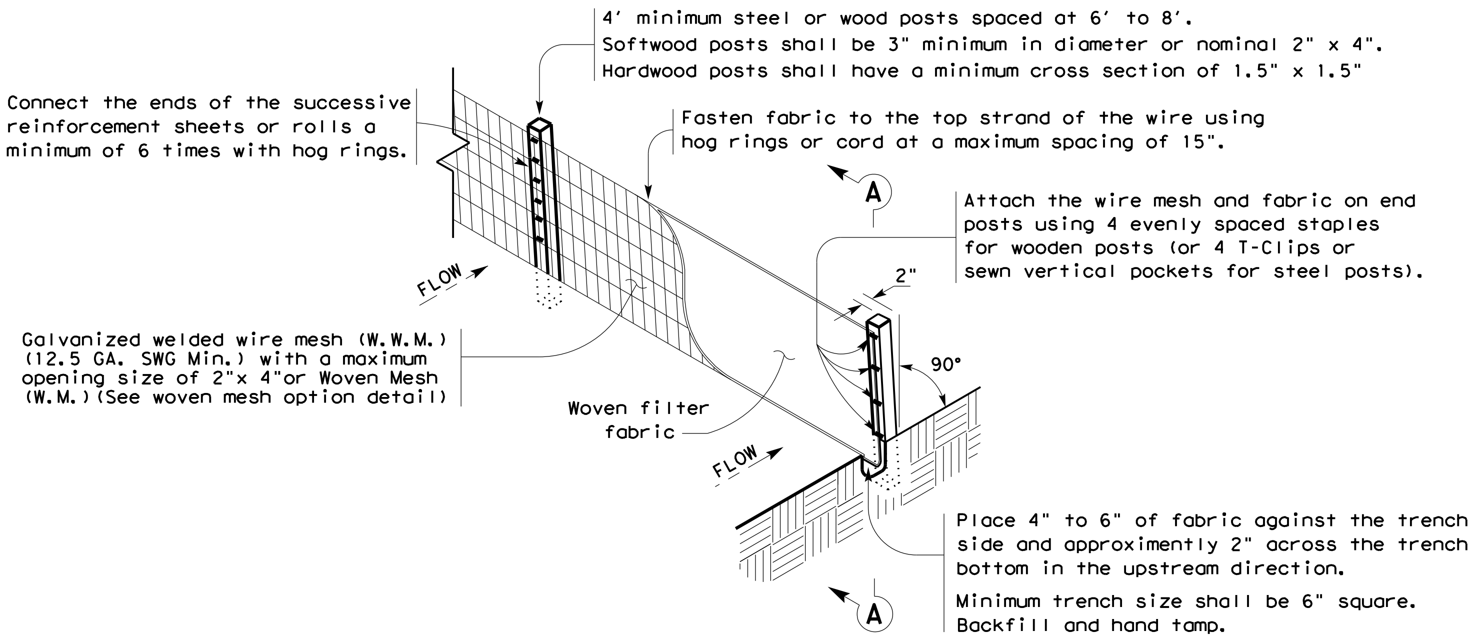
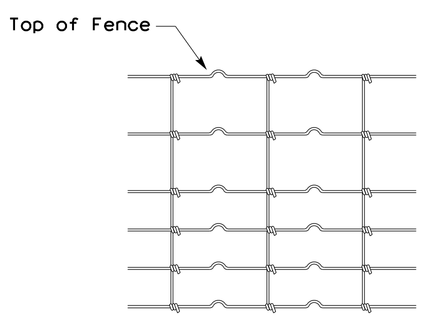
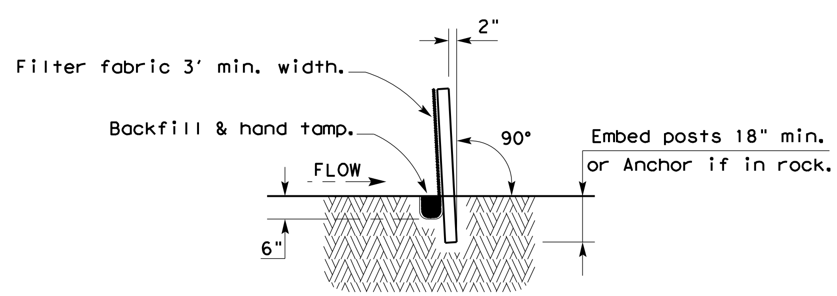


TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

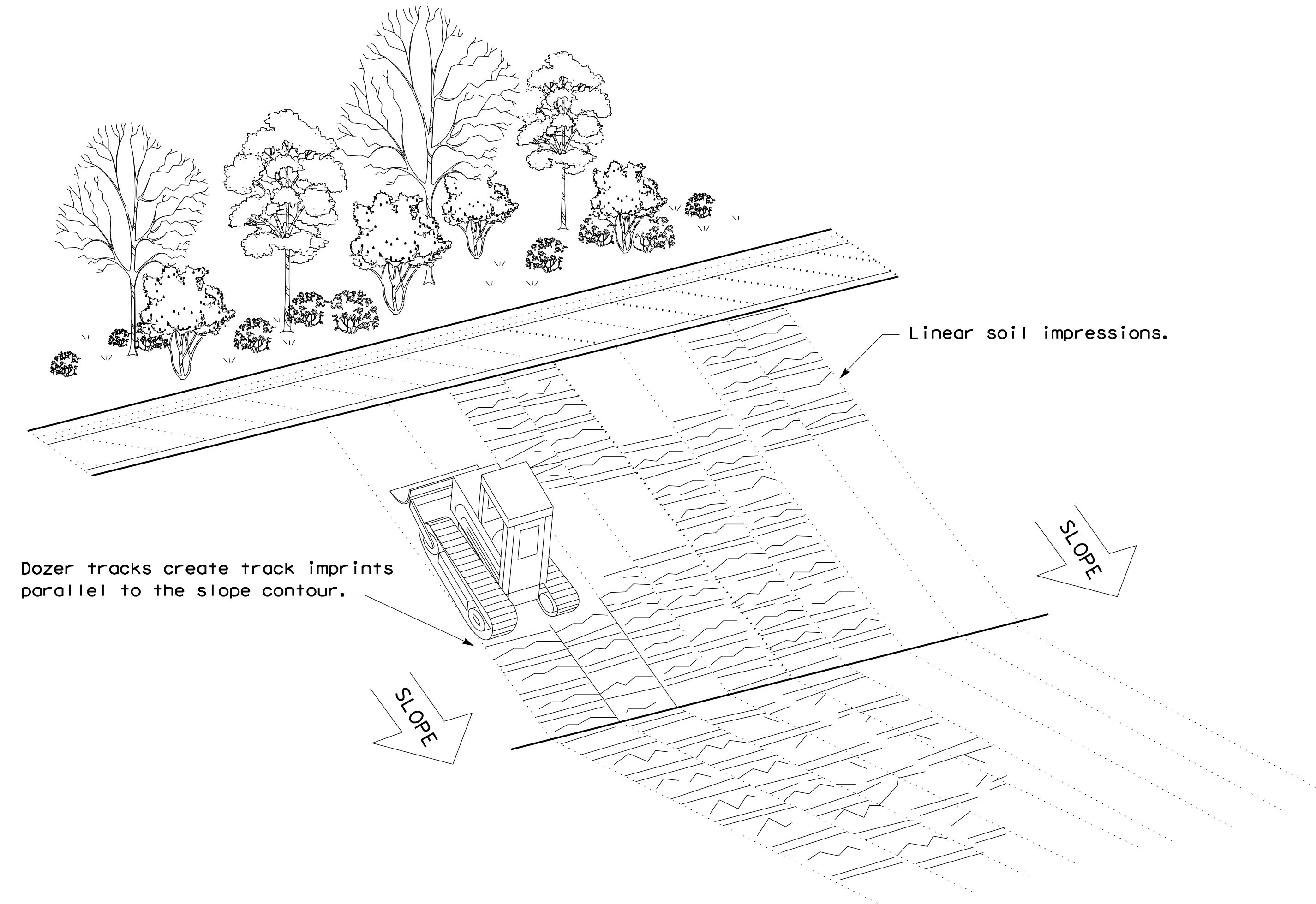
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation
Design Division Standard

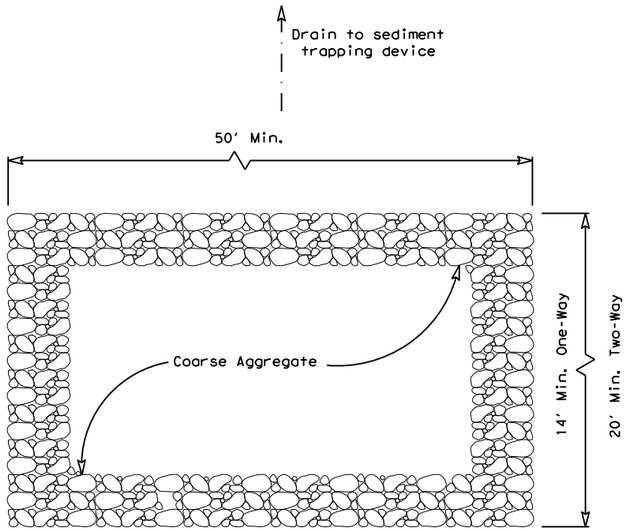
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

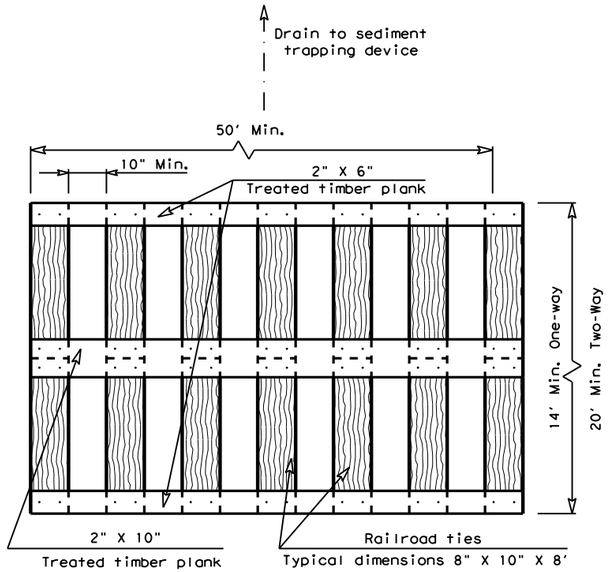
EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
	DIST	COUNTY		SHEET NO.
	LBB	LUBBOCK, ETC.		257

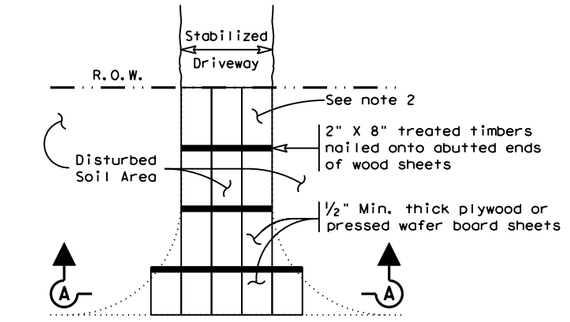
DATE: 2/2/2024
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011136/4 - Design/Plan Set/9. Environmental/Standards/ec316.dgn



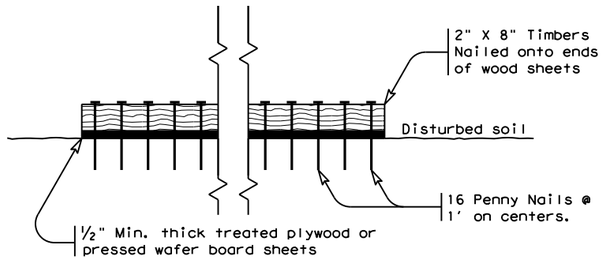
PLAN VIEW



PLAN VIEW



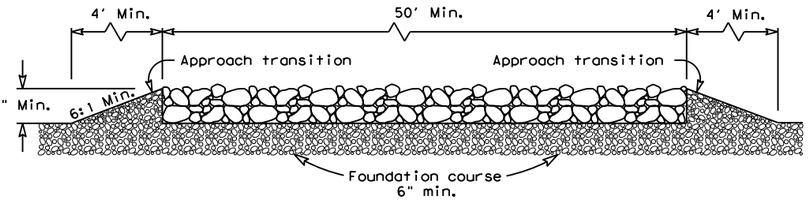
PLAN VIEW



SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

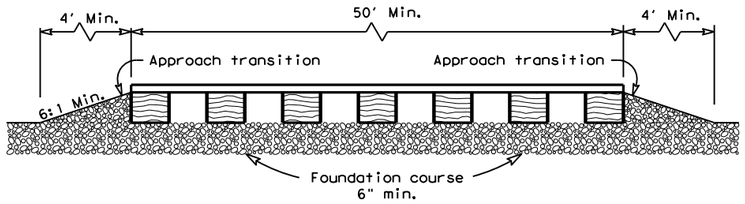
SHORT TERM



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 1)

ROCK CONSTRUCTION (LONG TERM)



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 2)

TIMBER CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 1)

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materialas approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
7. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 2)

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
2. The treated timber planks shall be attached to the railroad ties with ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
8. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 3)

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation

Design Division Standard

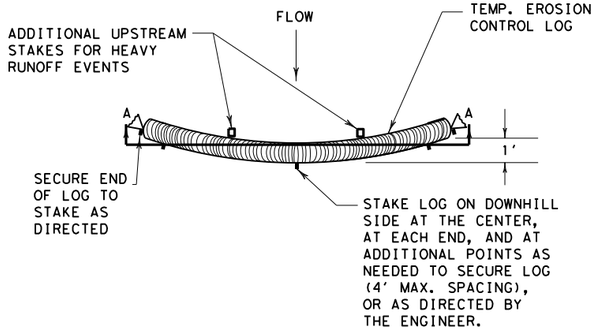
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

CONSTRUCTION EXITS

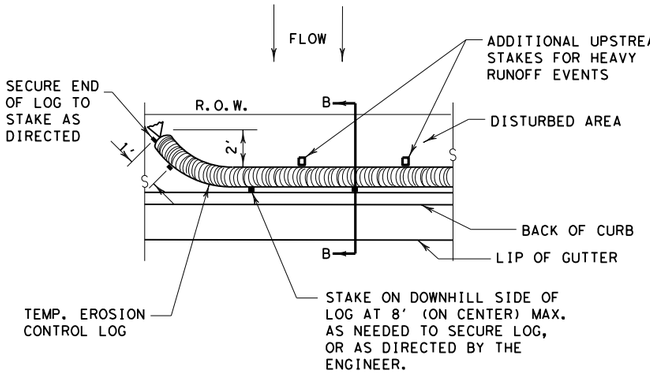
EC(3)-16

FILE: ec316	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
	DIST	COUNTY		SHEET NO.
	LBB	LUBBOCK, ETC.		258

DATE: 2/2/2024
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/05 - LBB/Design Projects/0053011364 - Design/Plan Set/9. Environmental/Standards/ec916.dgn



PLAN VIEW



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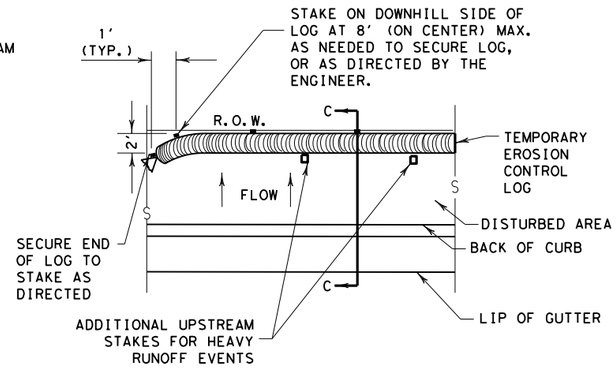
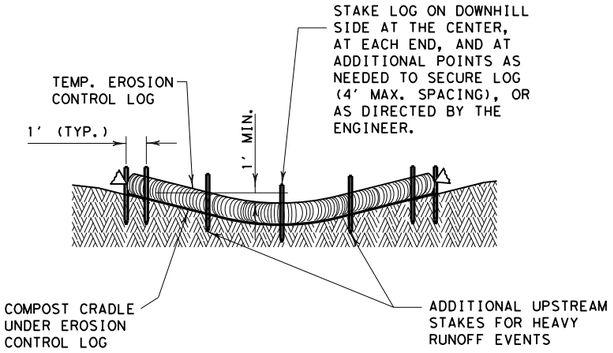


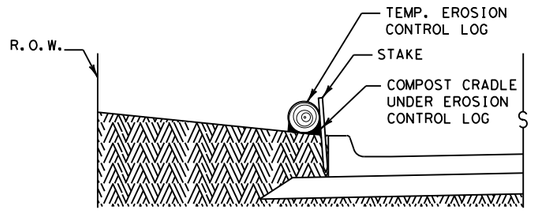
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

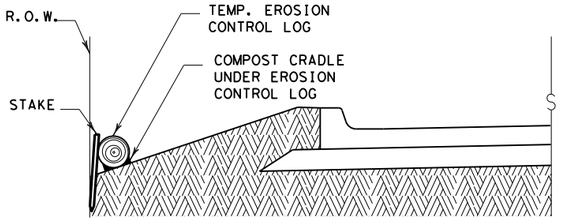
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

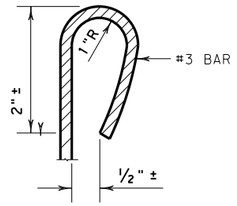
CL-BOC



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



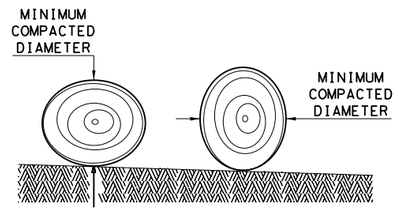
REBAR STAKE DETAIL

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
	DIST	COUNTY		SHEET NO.
	LBB	LUBBOCK, ETC.		259

DATE: 2/2/2024
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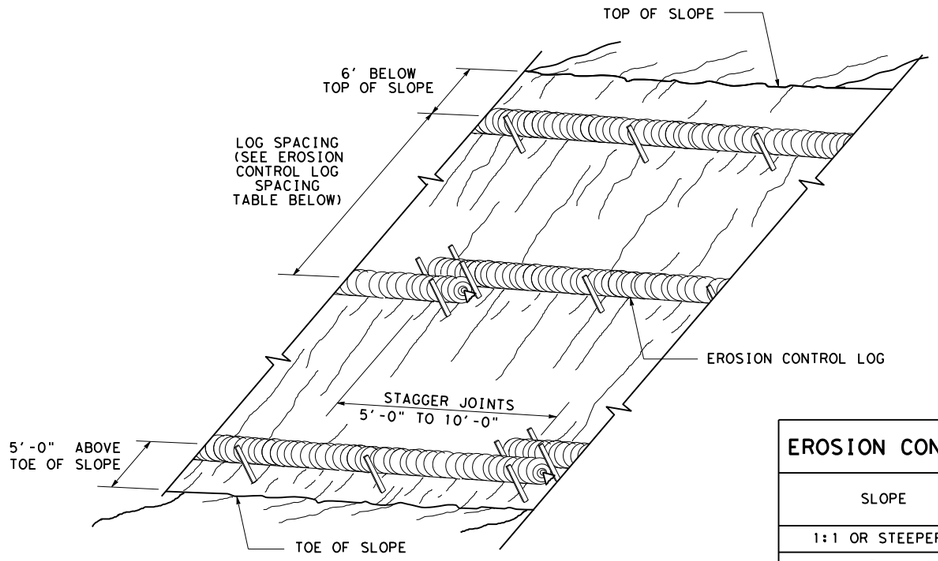
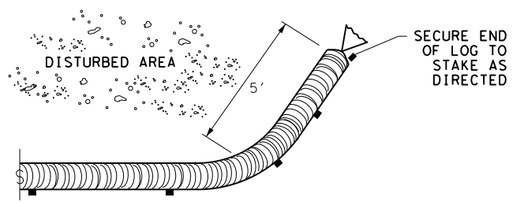


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

CL-SST

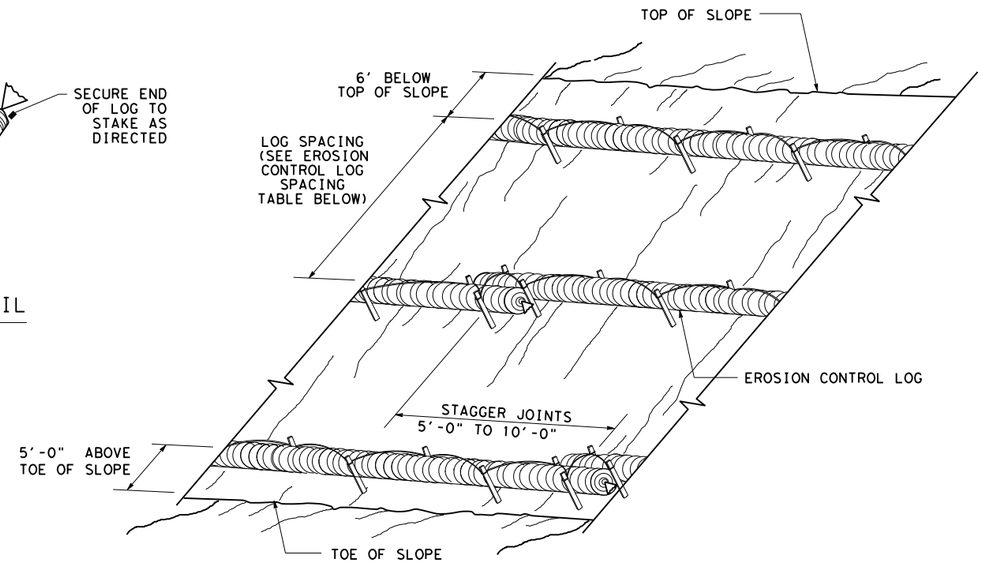


END SECTION RAP DETAIL

EROSION CONTROL LOG SPACING TABLE

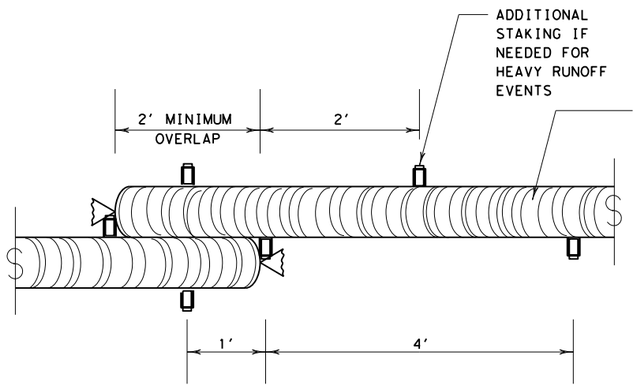
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

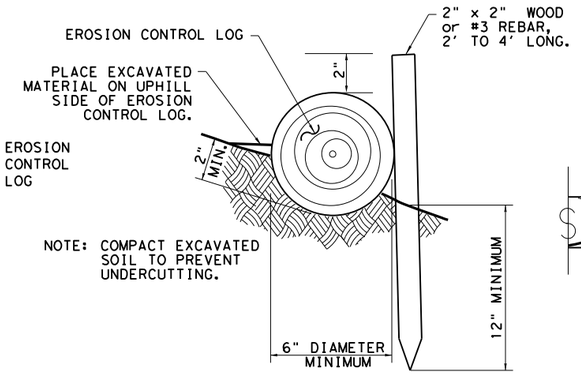
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL



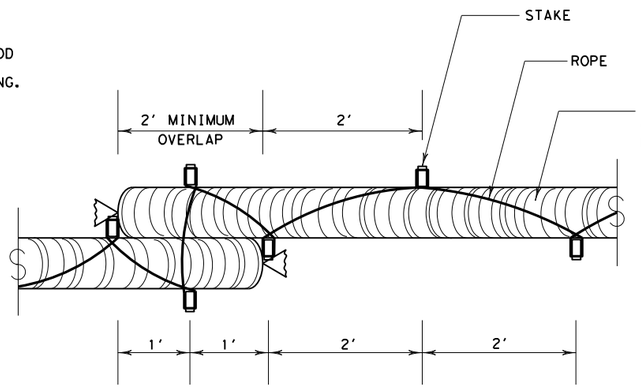


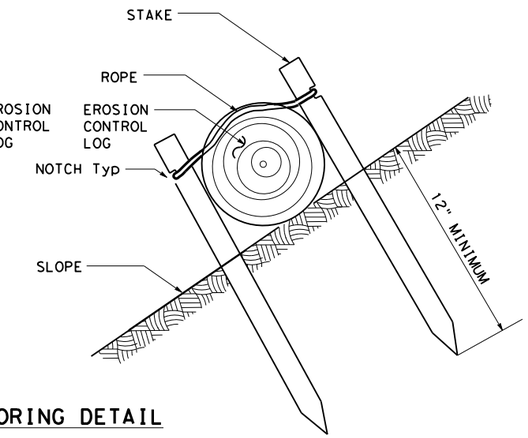
STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

TRENCH DEPTH TABLE

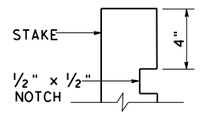
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC(9)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
	DIST	COUNTY		SHEET NO.
	LBB	LUBBOCK, ETC.		260

DATE: 2/2/2024
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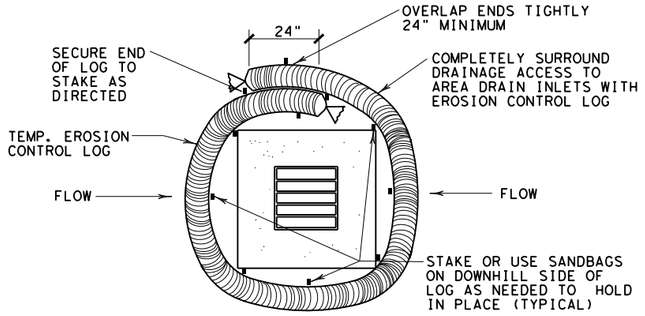
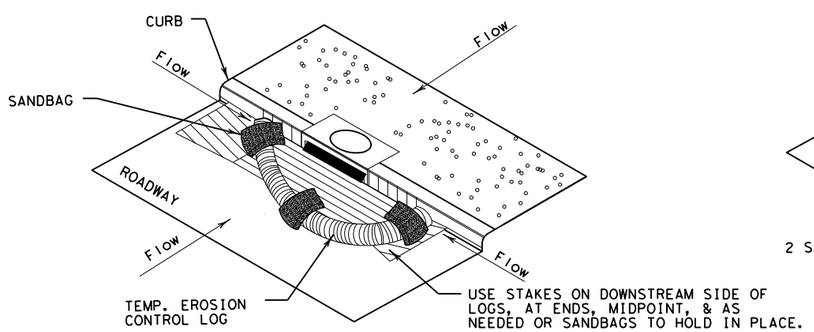


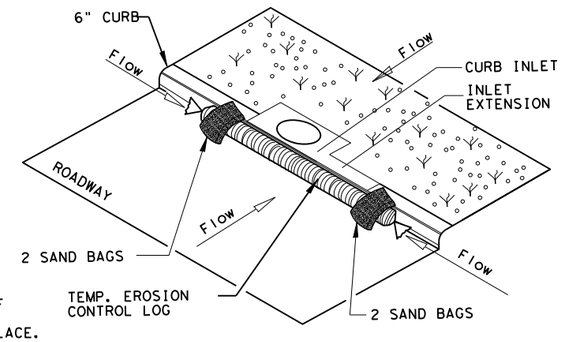
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

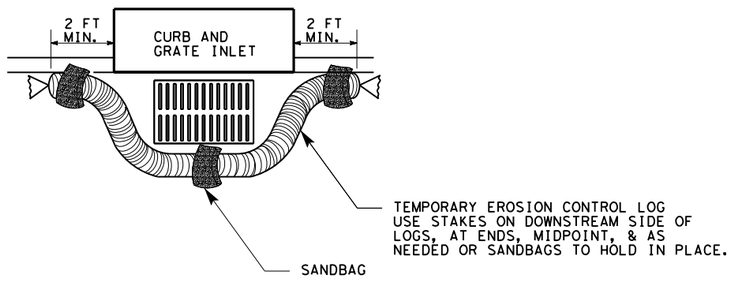
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

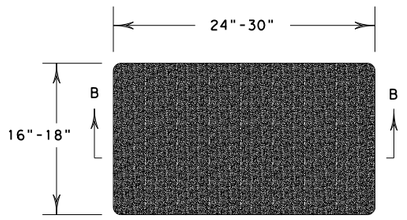
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI

SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
	DIST	COUNTY		SHEET NO.
	LBB	LUBBOCK, ETC.		261

DATE:
FILE:

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1. NONE

2.

☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

☒ No Permit Required

☐ Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)

☐ Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)

☐ Individual 404 Permit Required

☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

1.

2.

3.

4.

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

☒ No Action Required ☐ Required Action

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical.
Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

☐ No Action Required ☒ Required Action

Action No.

1. Comply with Executive Order 13112 on Invasive Plant Species.
2. Comply with TxDOT Executive Memorandum on beneficial landscaping.
3. Comply with temporary and permanent vegetation stabilization protocols of the SW3P.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

☐ No Action Required ☒ Required Action

Action No.

1. Do not handle or harm Texas horned lizards, prairie dogs, barn swallows or burrowing owls.
2. No prairie dog towns can be damaged or crossed with equipment without approval of the Engineer.
3. No nests of burrowing owls (in prairie dog holes) can be disturbed or damaged (See General Notes).
4. No nests of barn swallows (likely on structures such as bridges) can be disturbed or damaged (See General Notes).
5. Obey the Bald and Golden Eagle Protection Act. Do not handle, harm, capture, disturb, or kill the species. Do not handle, harm, or take nests, eggs, feathers, bones, or eagles.
6. Obey the Migratory Bird Treaty Act of 1916, of which details there cannot be any handling or harming of migratory bird species; including their eggs, nests, or feathers.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

LIST OF ABBREVIATIONS

BMP:	Best Management Practice	SPCC:	Spill Prevention Control and Countermeasure
CGP:	Construction General Permit	SW3P:	Storm Water Pollution Prevention Plan
DSHS:	Texas Department of State Health Services	PCN:	Pre-Construction Notification
FHWA:	Federal Highway Administration	PSL:	Project Specific Location
MOA:	Memorandum of Agreement	TCEQ:	Texas Commission on Environmental Quality
MOU:	Memorandum of Understanding	TPDES:	Texas Pollutant Discharge Elimination System
MS4:	Municipal Separate Stormwater Sewer System	TPWD:	Texas Parks and Wildlife Department
MBTA:	Migratory Bird Treaty Act	TxDOT:	Texas Department of Transportation
NOT:	Notice of Termination	T&E:	Threatened and Endangered Species
NWP:	Nationwide Permit	USACE:	U.S. Army Corps of Engineers
NOI:	Notice of Intent	USFWS:	U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:
* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

☐ Yes ☒ No

If "No", then no further action is required.
If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

☐ Yes ☐ No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

☒ No Action Required ☐ Required Action

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☐ No Action Required ☒ Required Action

Action No.

1. Maintain equipment muffler systems and work hour restrictions to reduce traffic noise.
2. No PSL's may be located in the prairie dog towns, playa lakes (wet or dry) or stream beds (wet or dry).
3. No dumping of construction material in playa lakes or stream beds regardless of property owner requests.
4. Contractor must obtain historical and archaeological clearances for off-site PSL's.
5. Contractor is responsible for air quality permits for concrete and asphalt batch and similar plants.
6. Contractor is responsible for water appropriation or impoundment TCEQ permits.
7. Contractor will protect environmentally sensitive areas with fencing, work sequencing or scheduling as directed.
8. PSL's beyond the project right-of-way have "individual operator" status under the TPDES Construction General Permit and the Contractor is responsible for the SW3P and any TCEQ permits.
9. No waste material of any type may be placed at any location where it could be washed into a water of the U.S. or a surface water of Texas.
10. Flood elevations will not be increased to a level that would violate flood plain regulations or ordinances.
11. Contractor shall remove all construction debris daily from the waterway by close of business, where applicable.
12. The SW3P, including best management practices, must be in-place prior to disturbing soil.

Texas Department of Transportation

Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

SHEET 1 OF 1

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0053	01	136	US 84, ETC.
12-12-2011 (DS)	DIST	COUNTY		SHEET NO.
05-07-14 ADDED NOTE SECTION IV.	LBB	LUBBOCK, ETC.		262
01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.				