United States Department of Agriculture
Natural Resources Conservation Service

PLUM CREEK WATERSHED

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

CALDWELL COUNTY, TEXAS

DRAINAGE AREA	5,521 ACRES
TOTAL STORAGE	3,394 AC. FT.
EFFECTIVE HEIGHT OF DAM	32 FEET
OVERALL HEIGHT OF DAM	40 FEET

SPONSORED BY

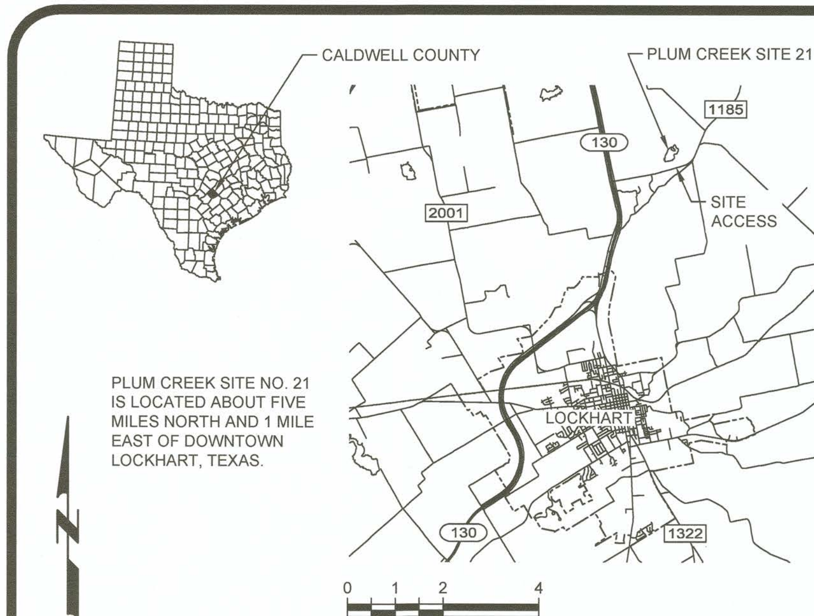
HAYS COUNTY SOIL AND WATER CONSERVATION DISTRICT
CALDWELL-TRAVIS SOIL AND WATER CONSERVATION DISTRICT
PLUM CREEK CONSERVATION DISTRICT

COOPERATING WITH

NATURAL RESOURCES CONSERVATION SERVICE
OF THE
U.S. DEPARTMENT OF AGRICULTURE

2021

SEE SHEET 2 FOR INDEX OF DRAWINGS



VICINITY MAP

CONSTRUCTION DRAWINGS APPROVED
ENGINEERING JOB CLASS VII

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STATE OF TEXAS
LANCE T. FINNEFROCK
111398
LICENSED
PROFESSIONAL ENGINEER
8/4/21

LANCE T. FINNEFROCK
TEXAS PE NO. 111398

AUGUST 4, 2021
DATE

STATE CONSERVATION ENGINEER, N.R.C.S.
TEMPLE, TEXAS

8/10/2021
DATE

DRAWING NO. FN: Plum 21 – Sht 00.dwg
TX–EN–0754

SYMBOLS LEGEND

	EXISTING PROPERTY LINE
358	EXISTING CONTOUR
	STREAM
X X	EXISTING FENCE
R	EXISTING FENCE TO BE REMOVED
C	FENCE TO BE CONSTRUCTED
OHE	EXISTING OVERHEAD ELECTRIC LINES
UE UE	EXISTING UNDERGROUND ELECTRIC LINES
WW	EXISTING WASTEWATER LINES
	CITY LIMITS
	TEMPORARY EASEMENT
	PERMANENT EASEMENT
LOC	LIMITS OF CONSTRUCTION
SF	SILT FENCE
	100-YR FLOOD INUNDATION LEVEL
	PROPOSED HANDRAIL
B–X	EXISTING BOREHOLES
	EXISTING POWER POLE
BMX	EXISTING BENCHMARK
P	EXISTING PIEZOMETER
	DIRECTION OF STORMWATER RUNOFF
	WATER LEVELS
	FLEX ROAD
	CONCRETE
	STABILIZED CONSTRUCTION ENTRANCE
	HIGH-SERVICE ROCK BERM
	EXISTING WETLAND
	CUT SLOPE
	FILL SLOPE
	EARTHFILL TYPE A
	EARTHFILL TYPE B
	EARTHFILL TYPE C
	EARTHFILL TYPE D
	EARTHFILL TYPE E
	EARTHFILL TYPE F
	EARTHFILL TYPE G

LEFT RIGHT

ORIENTATION WHEN LOOKING DOWNSTREAM

DIRECTION IN WHICH SECTION IS TAKEN

1 X

SECTION NUMBER

SHEET ON WHICH SECTION/DETAIL IS SHOWN

DETAIL NUMBER

1 X **DETAIL TITLE**

SCALE: AS SHOWN

SHEET ON WHICH DETAIL IS TAKEN (IF APPLICABLE)

ABBREVIATIONS

FT or '	FEET
APPROX.	APPROXIMATELY
AS	AUXILIARY SPILLWAY
℄ or BL	BASELINE
BMP	BEST MANAGEMENT PRACTICE
BM	BENCH MARK
C/C	CENTER TO CENTER
CFS	CUBIC FEET PER SECOND
℄	CENTERLINE
CJ	CONSTRUCTION JOINT
CRJ	CONTRACTION JOINT
DEG. or °	DEGREES
DIA. or Ø	DIAMETER
D/S	DOWNSTREAM
EA	EACH
E/F	EACH FACE
E/W	EACH WAY
E	EAST, EASTING
ELEV. or EL.	ELEVATION
EXIST.	EXISTING
IN. or "	INCHES
LOC	LIMITS OF CONSTRUCTION
MAX.	MAXIMUM
MIN.	MINIMUM
MSL	MEAN SEA LEVEL
NOI	NOTICE OF INTENT
N	NORTH, NORTHING
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O/S	OFFSET
PS	PRINCIPAL SPILLWAY
PSI	POUNDS PER SQUARE INCH
R	RADIUS
RCC	ROLLER COMPACTED CONCRETE
REINF.	REINFORCED, REINFORCING
SCH.	SCHEDULE
SHT.	SHEET
SF	SILT FENCE
STA.	STATION
S.S.	STAINLESS STEEL
SWPPP	STORM WATER POLLUTION PREVENTION PLAN
S.D.	STUB DIVERSION
TYP.	TYPICAL
U/S	UPSTREAM
WPAP	WATER POLLUTION ABATEMENT PLAN
YR	YEAR

REVISIONS		
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LEGEND AND ABBREVIATIONS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture

Natural Resources Conservation Service

DRAWING NO. TX–EN–0754

SHEET NO. 1 OF 83

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GENERAL NOTES:

1. THE GENERAL NOTES AND TYPICAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS, INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING UTILITIES. CONTRACTOR SHALL NOTIFY OWNER'S RESIDENT REPRESENTATIVE IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH WORK.
3. CONTOURS WERE OBTAINED FROM SURVEYS PERFORMED IN NOVEMBER 2019. CONTRACTOR SHALL MAKE SITE SURVEYS AS NECESSARY FOR CONSTRUCTION AND IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION 7, CONSTRUCTION SURVEYS.
4. THE LIMITS OF CONSTRUCTION ARE SET 2 FEET INSIDE PERMANENT AND TEMPORARY EASEMENTS UNLESS OTHERWISE SHOWN. CONTRACTOR SHALL STAY WITHIN THE LIMITS OF CONSTRUCTION AND NOT VENTURE OFF THE ACCESS ROADS EXCEPT FOR DIRECT ACCESS TO THE WORK AREAS. CONTRACTOR SHALL CLEARLY MARK THE LIMITS OF CONSTRUCTION WITH SILT FENCE.
5. COMPLY AND CONDUCT WORK IN ACCORDANCE WITH OWNER'S SECURITY REGULATIONS AND REQUIREMENTS. PROVIDE SITE SECURITY AS NECESSARY TO PROTECT AGAINST VANDALISM AND LOSS BY THEFT.
6. CONTRACTOR SHALL MANAGE AND PROTECT THE WORK FROM FLOOD FLOWS, STREAM FLOWS, SURFACE WATER RUNOFF, GROUNDWATER OR ANY OTHER WATER ENCOUNTERED DURING THE PROGRESS OF THE WORK IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION 11, REMOVAL OF WATER.
7. NOTIFY OWNER OF ANY SIGNS TO BE TEMPORARILY REMOVED. ALL EXISTING SIGNS TEMPORARILY REMOVED, IF ANY, SHALL BE STORED ON SITE BY THE CONTRACTOR AND SHALL BE REINSTALLED BY THE CONTRACTOR AT THE END OF CONSTRUCTION IN THEIR ORIGINAL CONDITION.
8. THE AREA AROUND OVERHEAD ELECTRICAL TOWERS SHALL BE PROTECTED. PROTECTION SHALL BE PROVIDED TO ANY TOWER, POLE OR GUY STRUCTURE WHEN TRAFFIC OR CONSTRUCTION ACTIVITY IS WITHIN 50 FEET OF THE STRUCTURE.
9. WORK UNDER THIS CONTRACT IS AUTHORIZED UNDER THE TERMS AND CONDITIONS OF THE U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT 3, MAINTENANCE. SEE THE SWPPP FOR DETAILS.
10. CONTRACTOR SHALL FOLLOW REQUIREMENTS OF SWPPP.
11. CONSTRUCT THE STAGING AREAS AND VEHICLE MAINTENANCE AREAS IN A MANNER TO MINIMIZE THE RUNOFF OF POLLUTANTS.
12. NO ON-SITE CONCRETE BATCH PLANT WILL BE PERMITTED.
13. NO CONSTRUCTION FILL OR MATERIALS SHALL BE PLACED OR STORED IN AREAS NOT SPECIFICALLY DESIGNATED FOR THAT PURPOSE.
14. PROVIDE PROTECTED STORAGE FOR PAINTS, CHEMICALS, SOLVENTS, AND OTHER POTENTIALLY HAZARDOUS MATERIALS.
15. HANDLING, STORAGE, AND DISPOSAL OF ALL WASTE MATERIAL SHALL CONFORM TO THE SWPPP.
16. PREVENT POLLUTION OF SURFACE WATER AND GROUNDWATER WITH PETROLEUM PRODUCTS OR OTHER HAZARDOUS OR REGULATED SUBSTANCES. TAKE SPECIAL MEASURES TO PREVENT CHEMICALS, FUELS, OILS, GREASES, HERBICIDES, AND INSECTICIDES FROM ENTERING DRAINAGE WAYS. DO NOT ALLOW WATER USED IN ON-SITE MATERIAL PROCESSING AND CLEANUP, AND OTHER CONTAMINATED WATER, TO ENTER A DRAINAGE WAY, STREAM, OR RIVER.
17. PROMPTLY REPAIR EQUIPMENT LEAKING OIL/HYDRAULIC FLUID/ETC. IMMEDIATELY REMOVE AND REPLACE, AS NECESSARY, ALL SOILS ON WHICH SUCH LEAKAGE OCCURRED. PREVENT THE SPREAD OF LEAKED FLUIDS OR FLUID CONTAMINATED MATERIALS FROM THE ORIGINAL LEAK AREA. BE RESPONSIBLE FOR THE PROPER HANDLING AND DISPOSAL OF ALL SUCH CONTAMINATED MATERIALS.
18. PROVIDE SECONDARY CONTAINMENT AROUND ANY FUEL AND CHEMICAL STORAGE AREAS TO ENSURE THAT SPILLS FROM ANY SUCH AREAS DO NOT DISCHARGE FROM THE SECONDARY CONTAINMENT AREA. THE SECONDARY CONTAINMENT CAPACITY SHALL BE ADEQUATE TO CONTAIN THE CAPACITY OF THE LARGEST TANK/CONTAINER PLUS SUFFICIENT FREEBOARD TO CONTAIN PRECIPITATION.
19. PRECAUTIONS SHALL BE TAKEN DURING EQUIPMENT FUELING AND CHEMICAL TRANSFER OPERATIONS IN ORDER TO PREVENT SPILLS FROM OCCURRING AND TO MINIMIZE THE IMPACT OF ANY SPILL THAT DOES OCCUR. ALL FUEL AND CHEMICAL TRANSFERS SHALL BE CONTINUOUSLY MONITORED. MAINTAIN APPROPRIATE EQUIPMENT ON-SITE FOR RESPONDING TO ANY OIL OR HAZARDOUS SUBSTANCE SPILL. ADDITIONALLY, THERE SHALL BE AN ON-SITE PROHIBITION AGAINST THE TOPPING OFF OF TANKS AND EQUIPMENT.
20. REMOVE ALL FORM WORK FOLLOWING CONSTRUCTION.
21. EXISTING ROADS, ACCESS DRIVES, UTILITIES AND PROPERTY WITHIN THE LIMITS OF CONSTRUCTION DAMAGED BY CONTRACTOR AND ALL DISTURBED AREAS SHALL BE REPAIRED BY CONTRACTOR TO SAME OR BETTER CONDITION PRIOR TO END OF CONSTRUCTION.
22. DATUM INFORMATION:

    HORIZONTAL DATUM IS TEXAS STATE PLANE, NAD83, SOUTH CENTRAL ZONE, 4204, US SURVEY FEET

    VERTICAL DATUM IS NAVD 88. ALL ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL (MSL).

INDEX OF DRAWINGS

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GENERAL NOTES AND INDEX OF DRAWINGS
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
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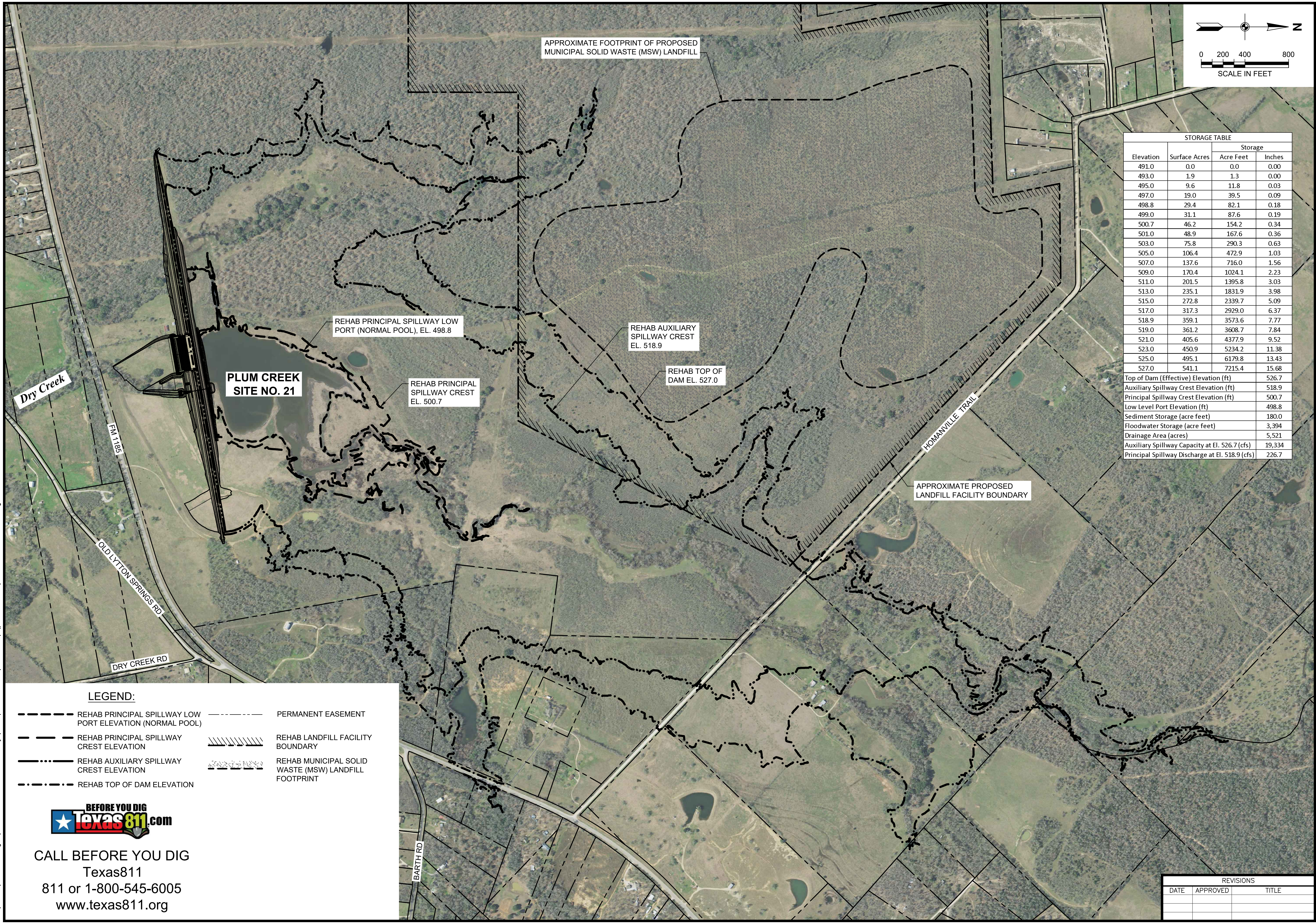

STORAGE TABLE			
		Storage	
Elevation	Surface Acres	Acre Feet	Inches
491.0	0.0	0.0	0.00
493.0	1.9	1.3	0.00
495.0	9.6	11.8	0.03
497.0	19.0	39.5	0.09
498.8	29.4	82.1	0.18
499.0	31.1	87.6	0.19
500.7	46.2	154.2	0.34
501.0	48.9	167.6	0.36
503.0	75.8	290.3	0.63
505.0	106.4	472.9	1.03
507.0	137.6	716.0	1.56
509.0	170.4	1024.1	2.23
511.0	201.5	1395.8	3.03
513.0	235.1	1831.9	3.98
515.0	272.8	2339.7	5.09
517.0	317.3	2929.0	6.37
518.9	359.1	3573.6	7.77
519.0	361.2	3608.7	7.84
521.0	405.6	4377.9	9.52
523.0	450.9	5234.2	11.38
525.0	495.1	6179.8	13.43
527.0	541.1	7215.4	15.68
Top of Dam (Effective) Elevation (ft)			526.7
Auxiliary Spillway Crest Elevation (ft)			518.9
Principal Spillway Crest Elevation (ft)			500.7
Low Level Port Elevation (ft)			498.8
Sediment Storage (acre feet)			180.0
Floodwater Storage (acre feet)			3,394
Drainage Area (acres)			5,521
Auxiliary Spillway Capacity at El. 526.7 (cfs)			19,334
Principal Spillway Discharge at El. 518.9 (cfs)			226.7

LEGEND:

- REHAB PRINCIPAL SPILLWAY LOW PORT ELEVATION (NORMAL POOL)
- REHAB PRINCIPAL SPILLWAY CREST ELEVATION
- REHAB AUXILIARY SPILLWAY CREST ELEVATION
- REHAB TOP OF DAM ELEVATION
- PERMANENT EASEMENT
- REHAB LANDFILL FACILITY BOUNDARY
- REHAB MUNICIPAL SOLID WASTE (MSW) LANDFILL FOOTPRINT

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RESERVOIR AREA MAP

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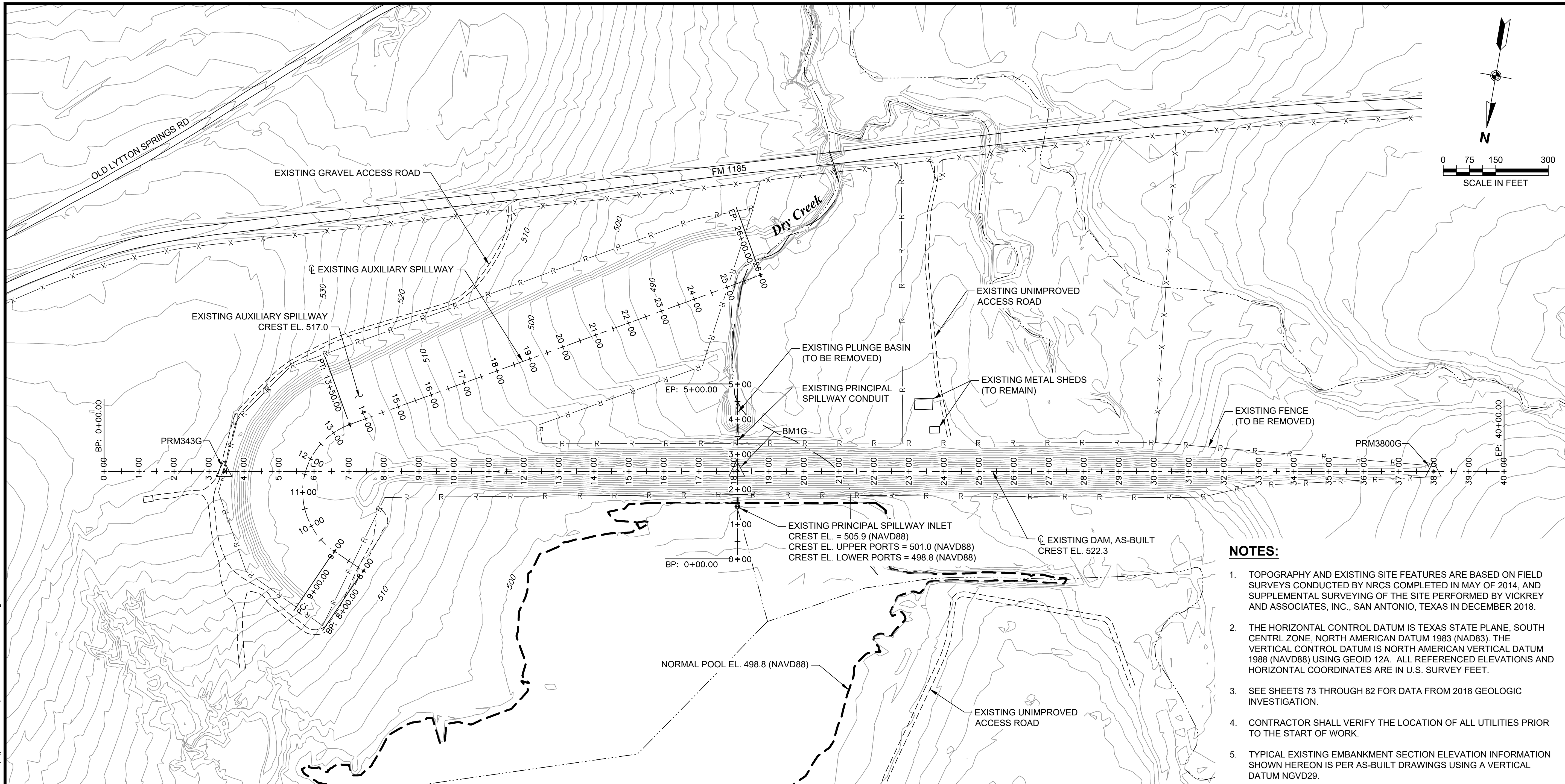
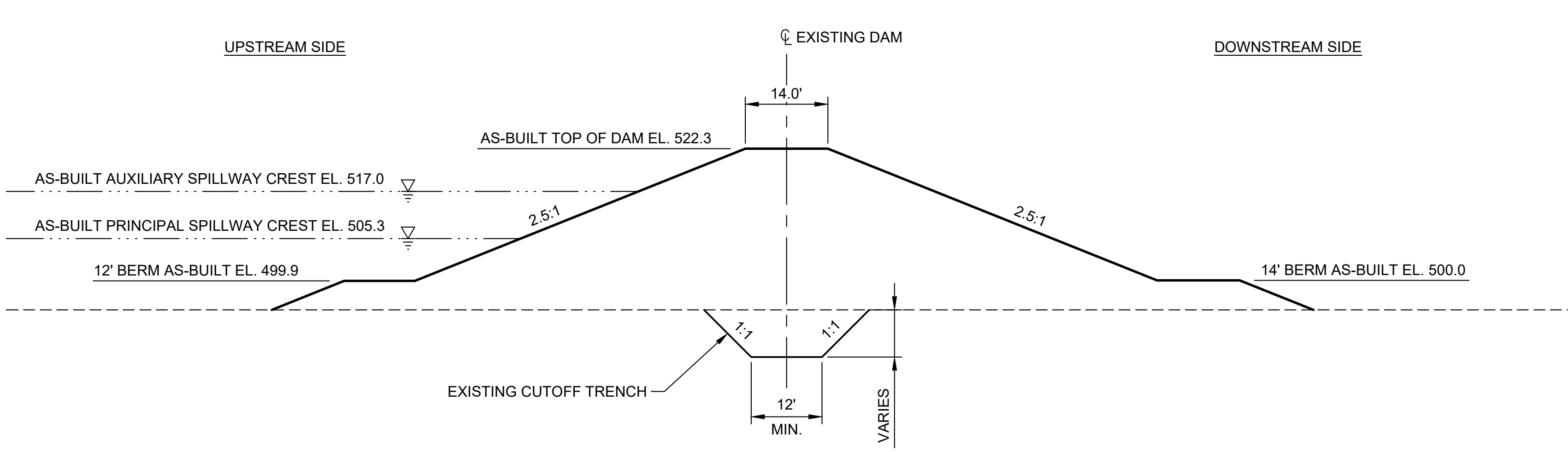


NOTES:

1. TOPOGRAPHY AND EXISTING SITE FEATURES ARE BASED ON FIELD SURVEYS CONDUCTED BY NRCS COMPLETED IN MAY OF 2014, AND SUPPLEMENTAL SURVEYING OF THE SITE PERFORMED BY VICKREY AND ASSOCIATES, INC., SAN ANTONIO, TEXAS IN DECEMBER 2018.
2. THE HORIZONTAL CONTROL DATUM IS TEXAS STATE PLANE, SOUTH CENTRL ZONE, NORTH AMERICAN DATUM 1983 (NAD83). THE VERTICAL CONTROL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88) USING GEOID 12A. ALL REFERENCED ELEVATIONS AND HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET.
3. SEE SHEETS 73 THROUGH 82 FOR DATA FROM 2018 GEOLOGIC INVESTIGATION.
4. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO THE START OF WORK.
5. TYPICAL EXISTING EMBANKMENT SECTION ELEVATION INFORMATION SHOWN HEREON IS PER AS-BUILT DRAWINGS USING A VERTICAL DATUM NGVD29.
6. THE AS-BUILT DRAWINGS WILL BE AVAILABLE FOR REVIEW AT THE PLUM CREEK CONSERVATION DISTRICT OFFICE AND ONLINE AT WWW.PCCD.ORG, JOB BIDS TAB ALONG WITH SITE 21 REHABILITATION BID DOCUMENTS..
7. LOCATION OF EXISTING STRUCTURES AND FENCES SHOWN ARE APPROXIMATE, AND MAY NOT INCLUDE ALL STRUCTURES AND FENCES IN THE AREA. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL STRUCTURES AND FENCES IN THE VICINITY OF THE WORK.



TYPICAL EXISTING EMBANKMENT SECTION

N.T.S.

BENCHMARKS

BM ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
PRM343G	13,898,301.57	2,396,084.04	534.539	PERMANENT REFERENCE MARKER STA. 3+43
BM1G	13,898,047.34	2,394,640.91	525.635	5/8" IRON ROD ON TOP OF DAM (APPROX. STA. 18+10)
PRM3800G	13,897,704.85	2,392,680.38	522.873	PERMANENT REFERENCE MARKER STA. 38+00

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EXISTING SITE PLAN

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
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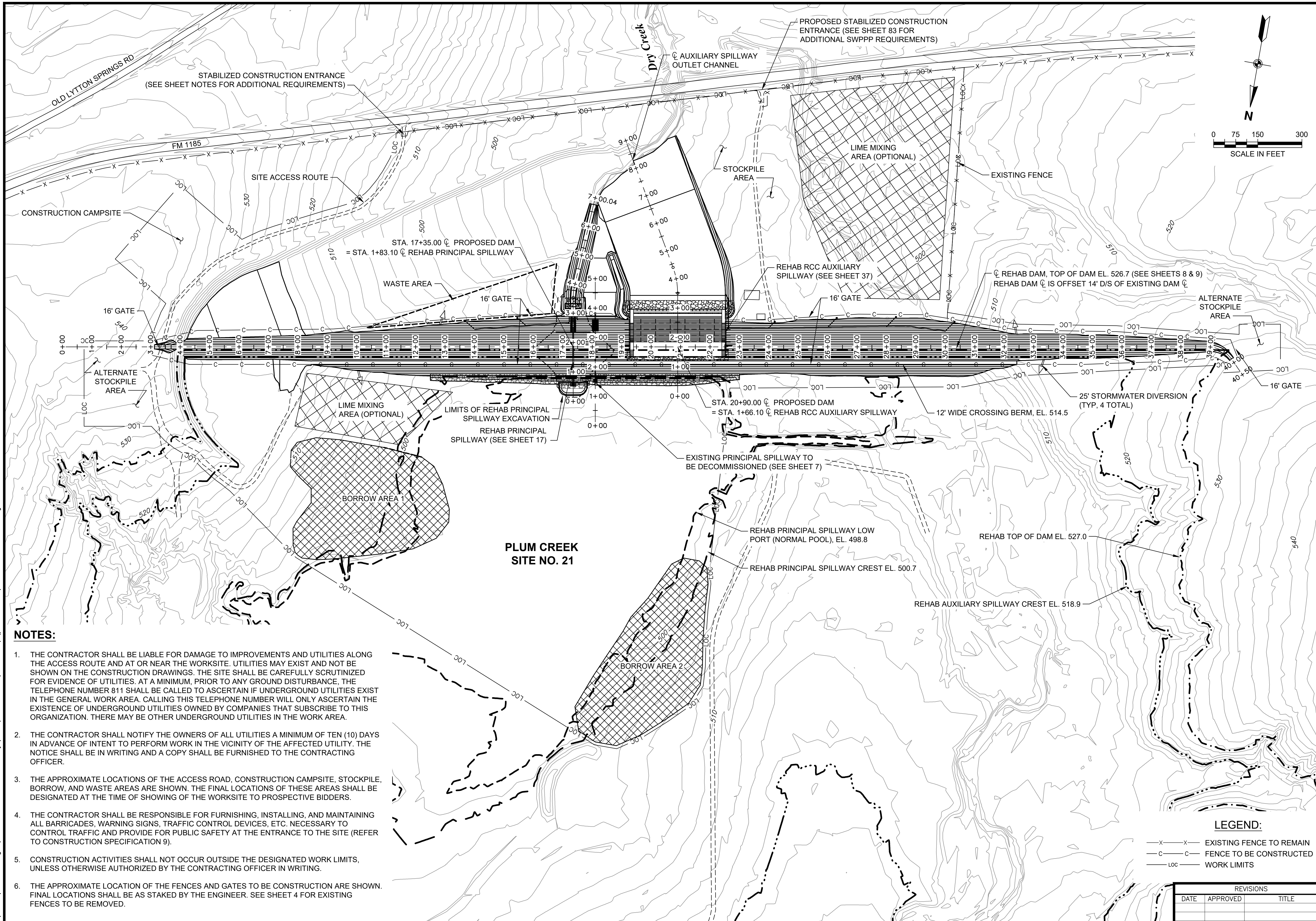

NOTES:

1. THE CONTRACTOR SHALL BE LIABLE FOR DAMAGE TO IMPROVEMENTS AND UTILITIES ALONG THE ACCESS ROUTE AND AT OR NEAR THE WORKSITE. UTILITIES MAY EXIST AND NOT BE SHOWN ON THE CONSTRUCTION DRAWINGS. THE SITE SHALL BE CAREFULLY SCRUTINIZED FOR EVIDENCE OF UTILITIES. AT A MINIMUM, PRIOR TO ANY GROUND DISTURBANCE, THE TELEPHONE NUMBER 811 SHALL BE CALLED TO ASCERTAIN IF UNDERGROUND UTILITIES EXIST IN THE GENERAL WORK AREA. CALLING THIS TELEPHONE NUMBER WILL ONLY ASCERTAIN THE EXISTENCE OF UNDERGROUND UTILITIES OWNED BY COMPANIES THAT SUBSCRIBE TO THIS ORGANIZATION. THERE MAY BE OTHER UNDERGROUND UTILITIES IN THE WORK AREA.

2. THE CONTRACTOR SHALL NOTIFY THE OWNERS OF ALL UTILITIES A MINIMUM OF TEN (10) DAYS IN ADVANCE OF INTENT TO PERFORM WORK IN THE VICINITY OF THE AFFECTED UTILITY. THE NOTICE SHALL BE IN WRITING AND A COPY SHALL BE FURNISHED TO THE CONTRACTING OFFICER.

3. THE APPROXIMATE LOCATIONS OF THE ACCESS ROAD, CONSTRUCTION CAMPSITE, STOCKPILE, BORROW, AND WASTE AREAS ARE SHOWN. THE FINAL LOCATIONS OF THESE AREAS SHALL BE DESIGNATED AT THE TIME OF SHOWING OF THE WORKSITE TO PROSPECTIVE BIDDERS.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL BARRICADES, WARNING SIGNS, TRAFFIC CONTROL DEVICES, ETC. NECESSARY TO CONTROL TRAFFIC AND PROVIDE FOR PUBLIC SAFETY AT THE ENTRANCE TO THE SITE (REFER TO CONSTRUCTION SPECIFICATION 9).

5. CONSTRUCTION ACTIVITIES SHALL NOT OCCUR OUTSIDE THE DESIGNATED WORK LIMITS, UNLESS OTHERWISE AUTHORIZED BY THE CONTRACTING OFFICER IN WRITING.

6. THE APPROXIMATE LOCATION OF THE FENCES AND GATES TO BE CONSTRUCTION ARE SHOWN. FINAL LOCATIONS SHALL BE AS STAKED BY THE ENGINEER. SEE SHEET 4 FOR EXISTING FENCES TO BE REMOVED.

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GENERAL PLAN OF MODIFICATIONS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

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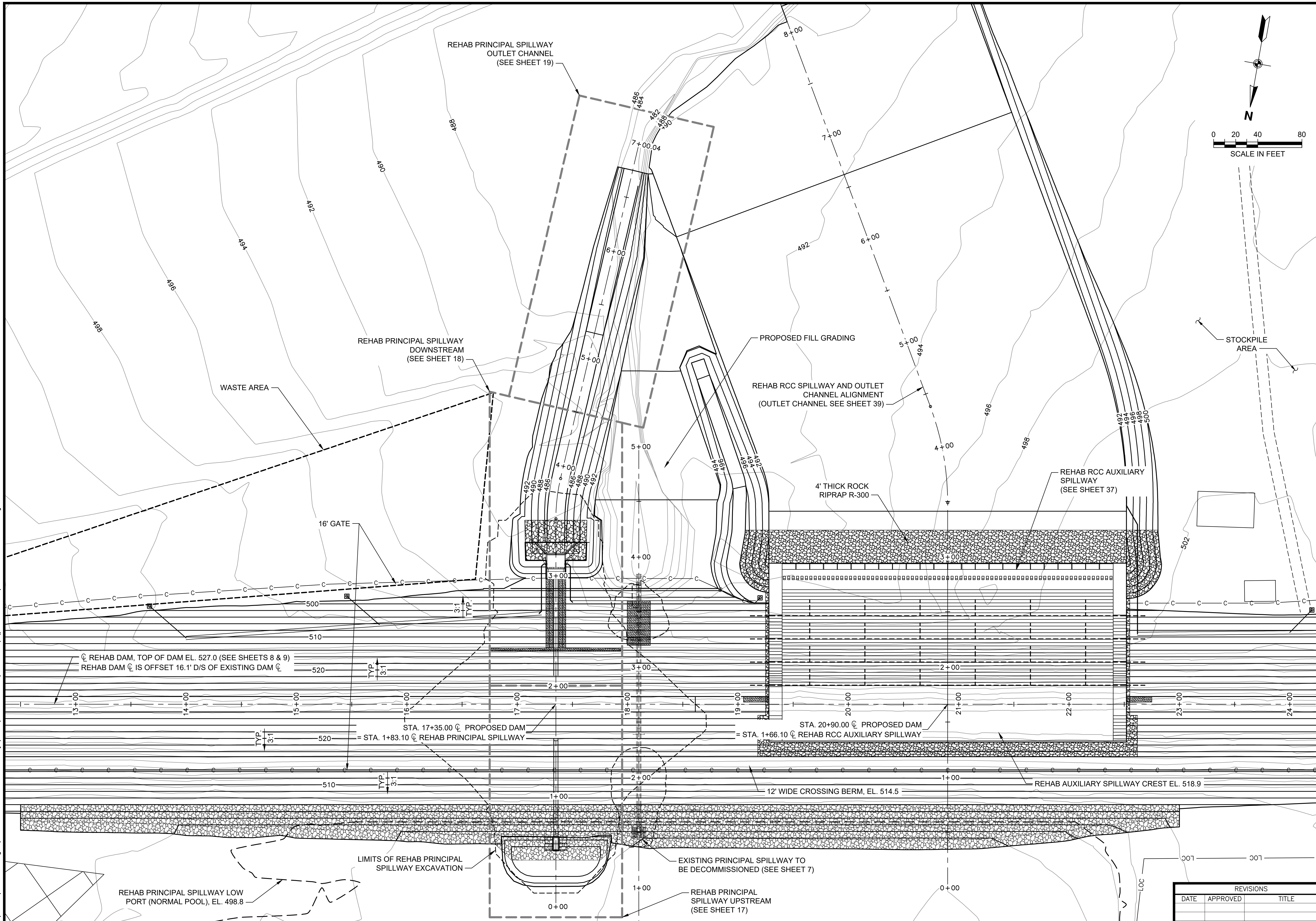

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SPILLWAYS GENERAL ARRANGEMENT

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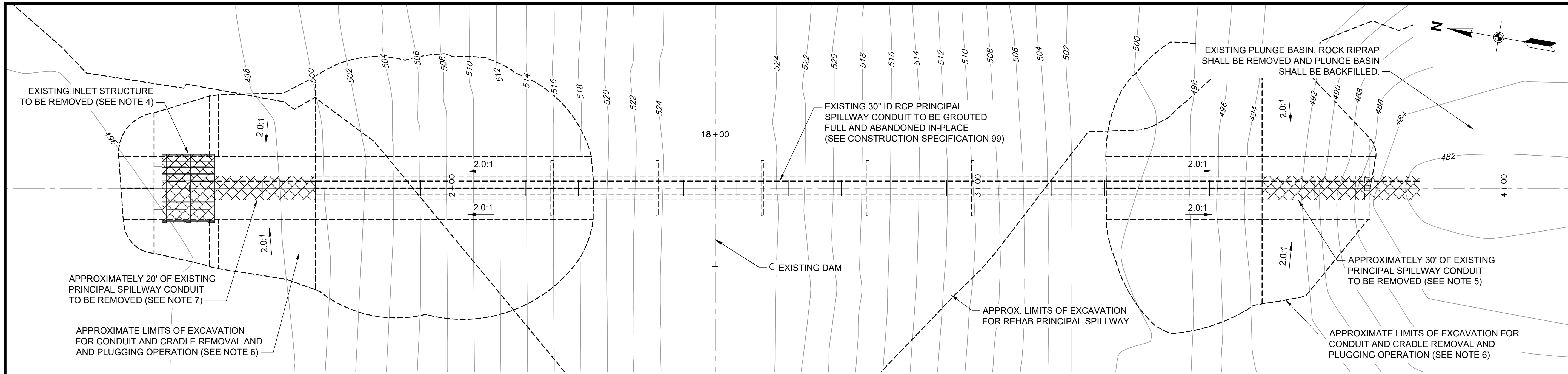
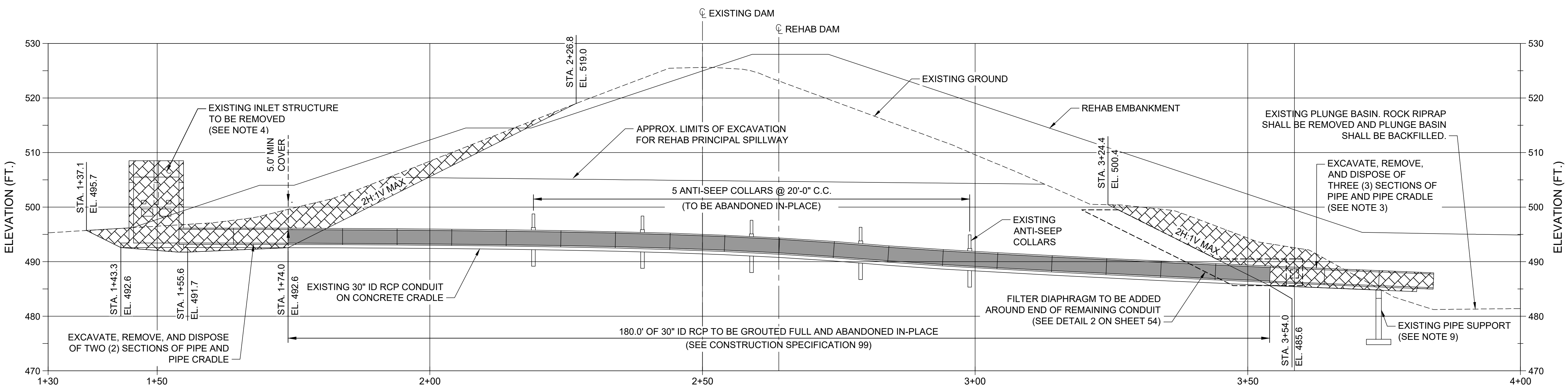


PLAN - EXISTING PRINCIPAL SPILLWAY DECOMMISSIONING

0 5 10 20
SCALE IN FEET

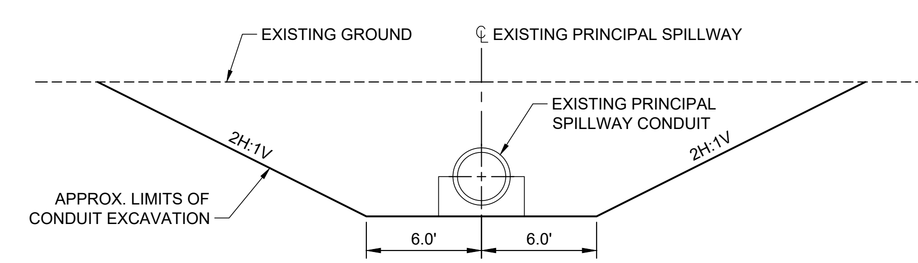


PROFILE - EXISTING PRINCIPAL SPILLWAY DECOMMISSIONING

0 5 10 20
SCALE IN FEET

NOTES:

1. EXISTING CONDUIT MAY BE USED TO DEWATER THE RESERVOIR / SITE DURING CONSTRUCTION. SEE CONSTRUCTION SPECIFICATION 11.
2. DRAWINGS OF EXISTING STRUCTURES WERE DEVELOPED FROM THE AS-BUILT DRAWINGS. AS A RESULT, THE DIMENSIONS OF EXISTING FACILITIES ARE APPROXIMATE. ACTUAL DIMENSIONS COULD VARY FROM DIMENSIONS AND THICKNESS SHOWN. CONTRACTOR SHALL FIELD VERIFY ACTUAL DIMENSIONS PRIOR TO THE START OF WORK. A COPY OF THE AS-BUILT DRAWINGS ARE AVAILABLE FROM THE CONTRACTING OFFICER.
3. REINFORCEMENT AND EMBEDDED METALWORK NOT SHOWN. HOWEVER, AS-BUILT DRAWINGS INDICATE THAT ALL CONCRETE EXCEPT THE PIPE CRADLE IS REINFORCED. HOWEVER, THE AS-BUILT DRAWINGS ALSO INDICATE THAT THE LAST 17' OF PIPE CRADLE (DOWNSTREAM END) IS ALSO REINFORCED.
4. REMOVE AND DISPOSE OF EXISTING INLET STRUCTURE, INCLUDING TRASH RACK, METAL GRADING, SLIDE GATE, AND ALL ASSOCIATED APPURTENANCES IN ACCORDANCE WITH THE REQUIREMENTS OF CONSTRUCTION SPECIFICATION 3.
5. EXCAVATION FOR REMOVAL OF THE EXISTING PRINCIPAL SPILLWAY INLET STRUCTURE SHALL BE COORDINATED WITH CONSTRUCTION OF NEW STRUCTURES.
6. THE LIMITS OF EXCAVATION SHOWN ARE APPROXIMATE. ALL EXCAVATION CUT SLOPES SHOWN ARE 2H:1V OR FLATTER AS DETERMINED BY CONTRACTOR. FINAL EXCAVATION LIMITS SHALL BE APPROVED BY THE ENGINEER.
7. REMOVE AND DISPOSE OF EXISTING RCP CONDUIT AND CONCRETE CRADLE IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION 3. THE BOTTOM OF THE EXISTING CONCRETE CRADLE SHALL BE THE LOWER LIMIT OF EXCAVATION ALONG THE LENGTH OF THE CONDUIT AT THE AREAS OF CONDUIT REMOVAL.
8. GROUT EXISTING RCP FOLLOWING REMOVAL OF EXISTING INLET STRUCTURE AND REMOVAL OF SPECIFIED PORTIONS OF EXISTING RCP. GROUT RCP FROM DOWNSTREAM END OF RCP TO REMAIN IN-PLACE. SEE CONSTRUCTION SPECIFICATION 3 AND CONSTRUCTION SPECIFICATION 99 FOR REQUIREMENTS REGARDING REMOVAL OF EXISTING INLET STRUCTURE AND GROUTING OF EXISTING PRINCIPAL SPILLWAY CONDUIT RESPECTIVELY.
9. EXISTING PIPE SUPPORT SHALL BE REMOVED TO THE EXTENT NECESSARY FOR THE CONTRACTOR TO PERFORM THE NECESSARY EARTHWORK



1 - TYPICAL PRINCIPAL SPILLWAY EXCAVATION LIMITS

SCALE: NTS

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EXISTING PRINCIPAL SPILLWAY DECOMMISSIONING

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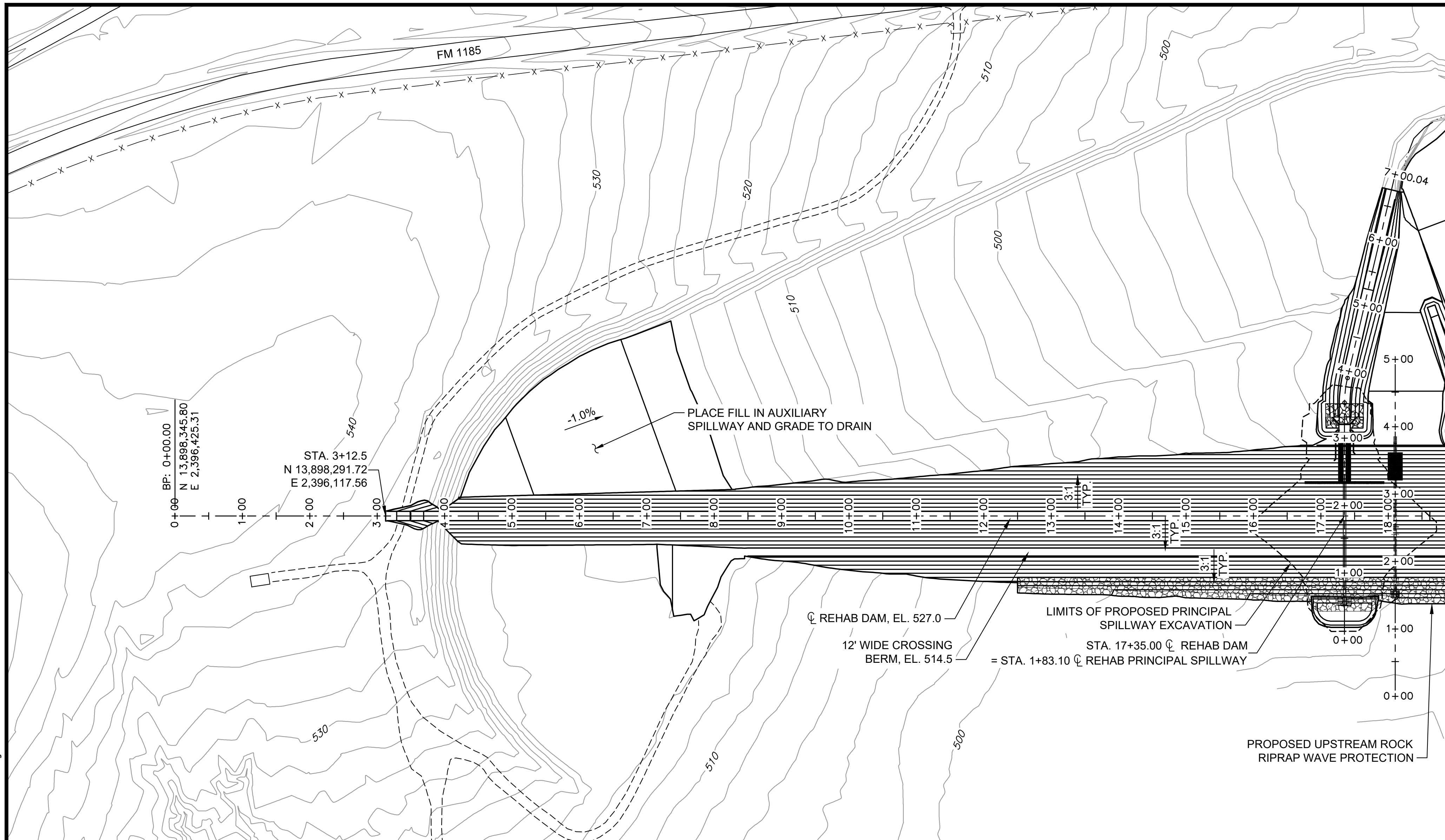

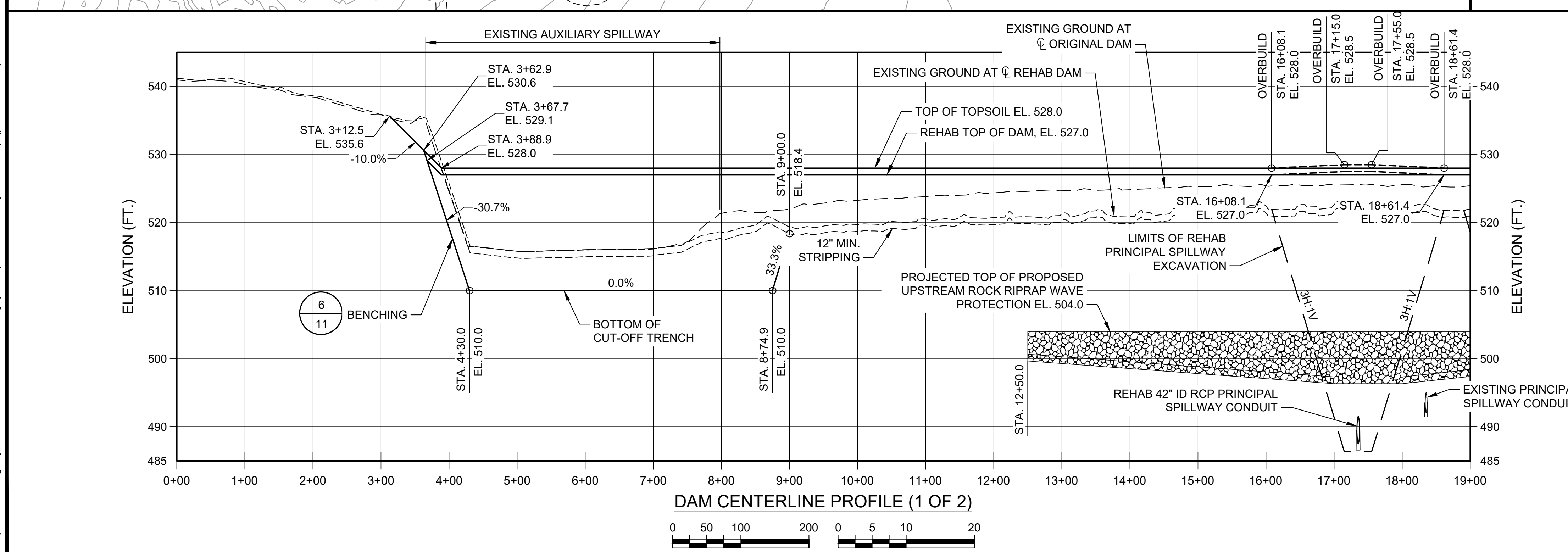

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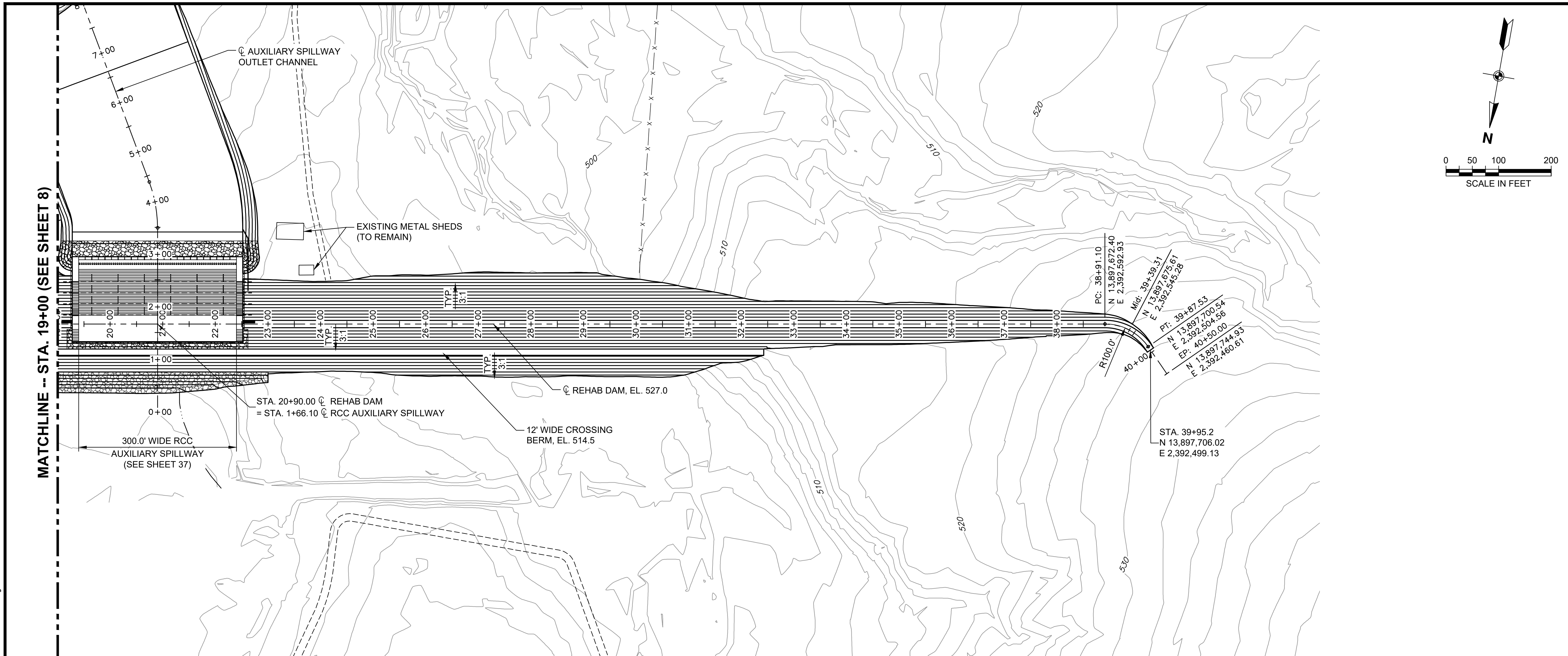
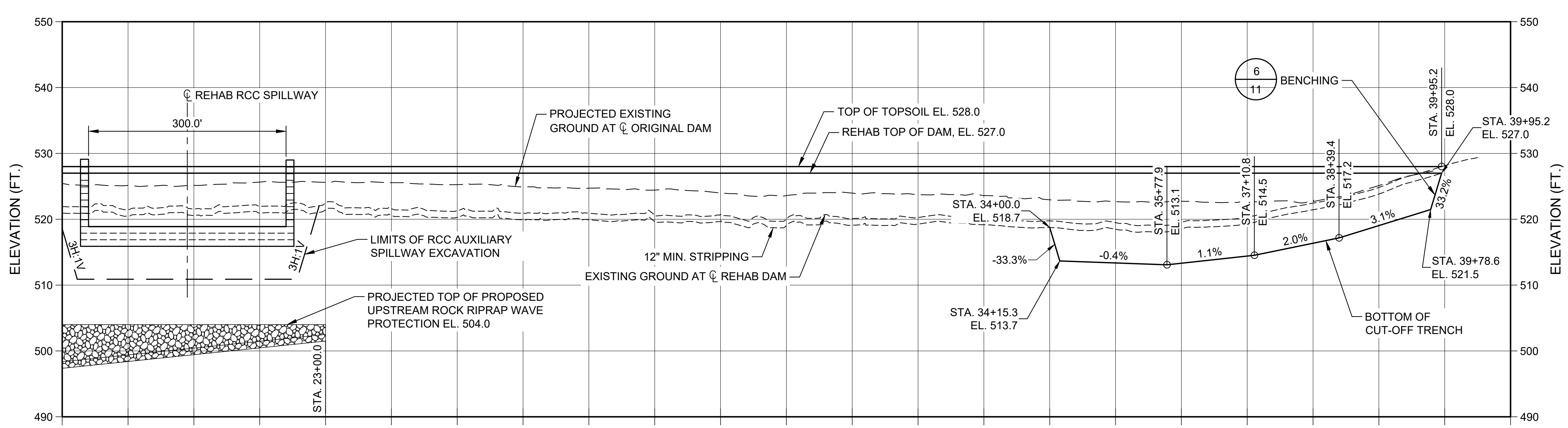
EMBANKMENT PLAN & PROFILE (1 OF 2)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX-EN-0754
SHEET NO. 8
OF 83





DAM CENTERLINE PROFILE (2 OF 2)

0 50 100 200 HORIZ. SCALE IN FEET

0 5 10 20 VERT. SCALE IN FEET

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EMBANKMENT PLAN & PROFILE (2 OF 2)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

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PROPOSED FILL MATERIALS			MATERIAL SOURCE INFORMATION				FILL MATERIAL REQUIREMENTS													
MATERIAL TYPE	DESCRIPTION	PLACEMENT LOCATION	MATERIAL SOURCE LOCATION	MATERIAL SOURCE DESCRIPTION	TYPICAL DEPTHS (FEET)		REQUIRED USCS GROUP SYMBOL (SEE NOTE 5)	REQUIRED ATTERBERG LIMITS		PERCENT FINER THAN NO. 200 SIEVE (%)	MAX. PARTICLE SIZE (SEE NOTE 5)	MAXIMUM UNCOMPACTED LIFT THICKNESS (SEE NOTE 7)	SPECIFIED COMPACTION CLASS	CRUMB TEST	PINHOLE DISPERSION	FIELD MOISTURE DENSITY TEST		REQUIRED RELATIVE COMPACTION (%)	COMPACTION MOISTURE LIMITS (±OPTIMUM)	
					TOP	BOTTOM		LL	PI							ASTM NO.	METHOD			
A	IMPORTED FILL	ADJACENT TO RCC SPILLWAY (SEE NOTE 1)	OFF-SITE BORROW AREA	---	---	---	CL, SC	< 45	7 - 20	> 40	2	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	95 - 100	OPT	+4%
B	IMPORTED FILL	UNDER RCC SPILLWAY (SEE NOTE 2)	OFF-SITE BORROW AREA	---	---	---	CL, SC	< 45	7 - 20	> 40	2	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	98 MIN.	OPT	+4%
C	ON-SITE FILL	EXTERIOR ZONE OF EMBANKMENT (SEE NOTES 3 AND 4)	BORROW AREA 1 (UPPER)	ALLUVIIUM	1	4	CL, CH, SC	< 55	10 - 30	> 40	3	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	95 - 100	OPT	+4%
			BORROW AREA 1 (LOWER)	RESIDUUM	4	10														
			PSW EMBANKMENT EXCAVATION*	EMBANK. FILL	1	39														
			RCC OUTLET CHANNEL EXCAVATION	FILL, RESIDUUM	1	5														
D	ON-SITE FILL	INTERIOR ZONE OF EMBANKMENT (SEE NOTES 3)	PSW EMBANKMENT EXCAVATION*	EMBANK. FILL	1	39	CH, CL	< 60	10 - 40	> 50	2	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	95 - 100	OPT	+4%
			PSW DS TOE EXCAV.	FILL, ALLUVIUM	1	10 TO 13.5														
				RESIDUUM	10 TO 13.5	17														
			RCC DS TOE EXCAV. (UPPER)	FILL, ALLUVIUM	1	2.5 TO 6.5														
			BORROW AREA 2 (UPPER)	ALLLUVIUM	1	3														
E	ON-SITE FILL	BERMS FOR RCC OUTLET CHANNEL, BACKFILL FOR EXISTING PSW PLUNGE POOL AND DOWNSTREAM CHANNEL	RCC DS TOE EXCAV. (LOWER)	RESIDUUM	5 TO 13.5	19	CH, CL	< 65	10 - 50	> 40	3	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	95 - 100	OPT	+4%
F	LIME-TREATED ON-SITE FILL	ADJACENT TO RCC SPILLWAY (SEE NOTE 1)	BORROW AREA 2 (LOWER)	RESIDUUM	3	8	(SEE NOTE 6)	< 55	7 - 15	> 50	2	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	95 - 100	OPT	+4%
			OTHER AREAS (SEE NOTE 8)	---	---	---														
G	LIME-TREATED ON-SITE FILL	UNDER RCC SPILLWAY (SEE NOTE 2)	RCC EMBANKMENT EXCAVATION	EMBANK. FILL	1	4 TO 14	(SEE NOTE 6)	< 55	7 - 15	> 50	2	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	98 MIN.	OPT	+4%
			OTHER AREAS (SEE NOTE 8)	---	---	---														
H	LIME-TREATED ON-SITE FILL	EXTERIOR ZONE OF EMBANKMENT (SEE NOTES 3, 4, AND 9)	BORROW AREA 2 (LOWER)	RESIDUUM	3	8	(SEE NOTE 6)	< 55	7 - 15	> 50	2	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	95 - 100	OPT	+4%
			OTHER AREAS (SEE NOTE 8)	---	---	---														

*PRIORITIZE SOURCE FOR MATERIAL C

NOTES:

1. APPLIES TO FILL ZONES LOCATED WITHIN A HORIZONTAL DISTANCE EQUAL TO THE WALL HEIGHT (1H) FROM RETAINED-SIDE FACE OF PROPOSED SPILLWAY WALLS AS SHOWN ON THE DRAWINGS.
2. APPLIES TO FILL ZONES LOCATED UNDER AND WITHIN 5-FOOT HORIZONTAL DISTANCE OF THE RCC SPILLWAY STRUCTURES FOOTPRINT AS SHOWN ON THE DRAWINGS.
3. APPLIES TO FILL ZONES LOCATED A DISTANCE GREATER THAN 1H FROM RETAINED-SIDE FACE OF WALL STRUCTURES.
4. APPLIES TO FILL ZONES LOCATED IN THE OUTER 5 FEET (VERTICAL) OF THE EMBANKMENT. MINIMUM LIFT PLACEMENT WIDTH OF 10 FEET (HORIZONTAL).
5. ALL MATERIALS SHALL HAVE NO GREATER THAN 20% GRAVEL (I.E., PERCENT COARSER THAN THE US NO. 4 SIEVE BY WEIGHT). SOILS OF THE LEONA FORMATION WHICH CLASSIFY AS CLAYEY GRAVEL (GC) AND TYPICALLY CONTAIN OVERSIZE PARTICLES ARE NOT SUITABLE FOR USE AS EMBANKMENT FILL.
6. REQUIRED ATTERBERG LIMITS REFER TO MATERIAL AFTER MODIFICATION BY LIME TREATMENT.
7. EARTHFILLS AND BACKFILLS TO BE COMPACTED BY HAND TAMPING OR WITH MANUALLY-DIRECTED POWER TAMPERS OR PLATE VIBRATORS BEHIND WALLS SHALL BE PLACED IN LAYERS NOT EXCEEDING 4 INCHES IN THICKNESS BEFORE COMPACTION. MAXIMUM ALLOWABLE PARTICLE SIZE FOR SUCH MATERIAL SHALL BE 2 INCHES. EACH LAYER SHALL BE CAREFULLY BONDED TO THE PRECEDING LAYER USING METHODS APPROVED BY THE ENGINEER.
8. BORROW SOURCES FOR MATERIALS F AND G ARE INTERCHANGEABLE. IF SUPPLEMENTAL VOLUME OF LIME-TREATED SOILS ARE REQUIRED, BORROW FROM OTHER ON-SITE AREAS MAY BE APPROVED BY THE ENGINEER SUBJECT TO THE RESULTS OF LABORATORY TREATABILITY TESTING BY THE CONTRACTOR AS REQUIRED BY THE PROJECT SPECIFICATIONS.
9. MATERIAL TYPE H IS A BID OPTION ITEM THAT IS RESERVED FOR USE ONLY AFTER AVAILABLE ON-SITE SOURCES OF MATERIAL TYPE C HAVE BEEN DEPLETED. WRITTEN AUTHORIZATION FROM THE CONTRACTING OFFICER IS REQUIRED PRIOR TO PROCEEDING WITH OPERATIONS ASSOCIATED WITH MATERIAL TYPE H.

FINE FILTER GRADATION

Sieve Size	Particle Size (mm)	Recommended Fine Filter Gradation Percent Finer by Weight	
		Coarse Band	Fine Band
3/8"	9.5	100	---
No. 4	4.75	100	---
No. 8	2.36	90	100
No. 16	1.18	65	100
No. 30	0.6	45	90
No. 50	0.3	45	93
No. 100	0.15	7	40
No. 200	0.074	0	3

COARSE FILTER GRADATION (ASTM C-33 No. 89)

Sieve Size	Particle Size (mm)	Recommended Coarse Filter Gradation Percent Finer by Weight	
		Coarse Band	Fine Band
2 in.	50	100	---
1 in.	25	90	100
½ in.	12.7	75	100
3/8 in.	9.5	65	100
No. 4	4.75	45	90
No. 10	2	20	65
No. 18	1	3	50
No. 40	0.425	0	25
No. 100	0.15	0	8
No. 200	0.075	0	3

FLEXBASE SPECIFICATION

Table 1
Material Requirements

Property	Test Method	Grade 1–2
Sampling	Tex-400-A	
Master gradation sieve size (cumulative % retained)	Tex-110-E	
2-1/2"		0
1-3/4"		0–10
7/8"		10–35
3/8"		30–65
#4		45–75
#40		65–90
Liquid Limit, % Max	Tex-104-E	40
Plasticity Index, Max[1]	Tex-106-E	10
Plasticity index, Min[1]		As shown on the plans
Wet ball mill, % Max	Tex-116-E	40
Wet ball mill, % Max increase passing the #40 sieve		20
Min compressive strength, psi	Tex-117-E	
lateral pressure 0 psi		35
lateral pressure 3 psi		–
lateral pressure 15 psi		175

1. Determine plastic index in accordance with Tex-107-E (linear shrinkage) when liquid limit is unattainable as defined in Tex-104-E.
2. Grade 4 may be further designated as Grade 4A, Grade 4B, etc.

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MATERIAL TABLES
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

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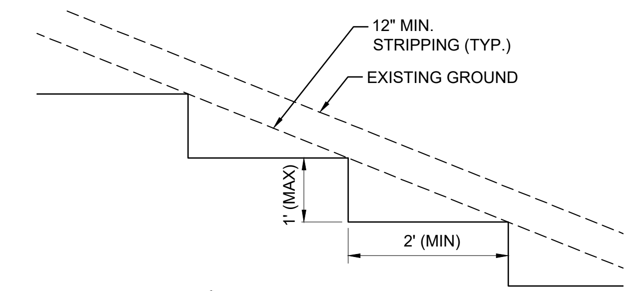
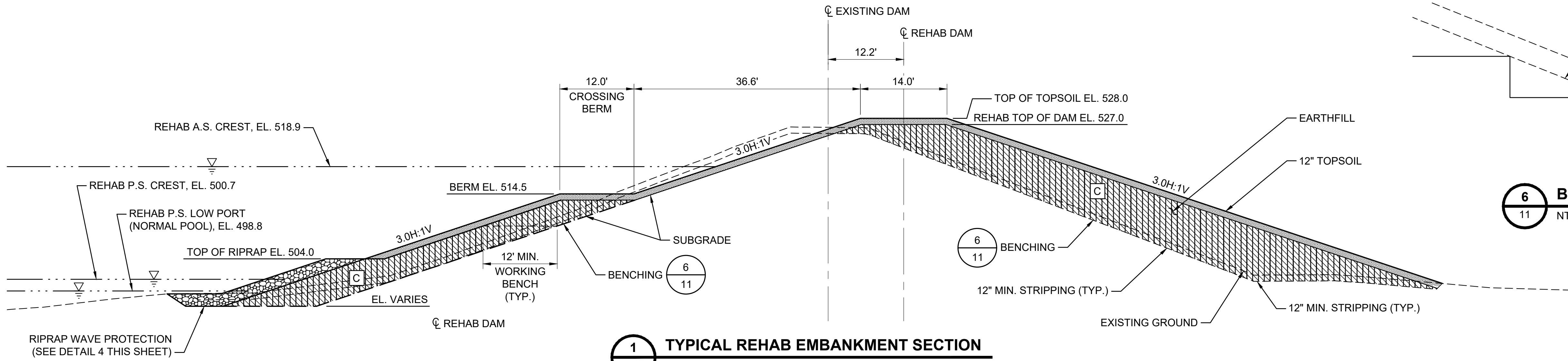
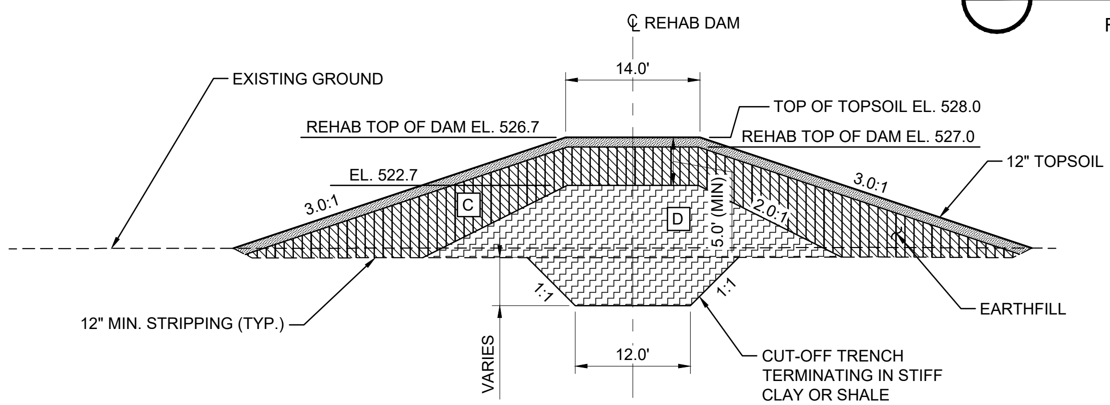


6/11 BENCHING DETAIL
NTS



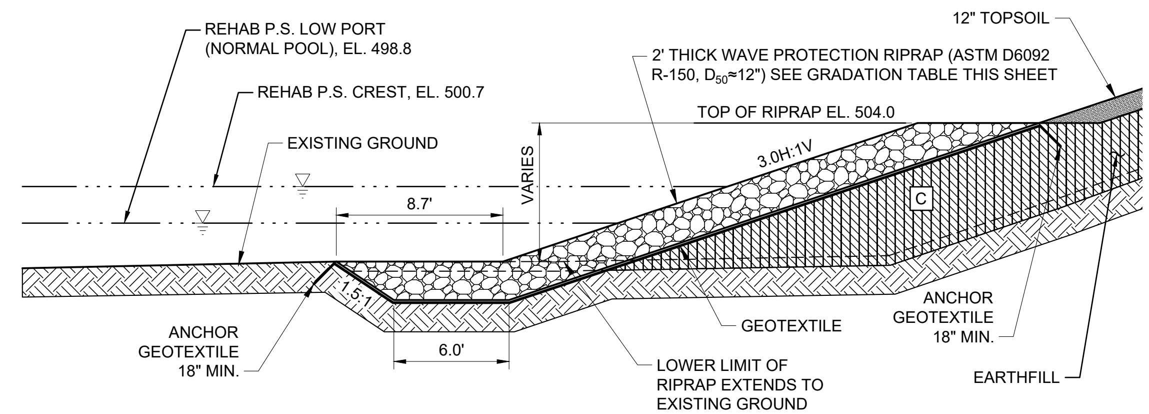
1 TYPICAL REHAB EMBANKMENT SECTION
FROM APPROX. STA. 9+00 TO STA. 34+00

0 5 10 20
SCALE IN FEET



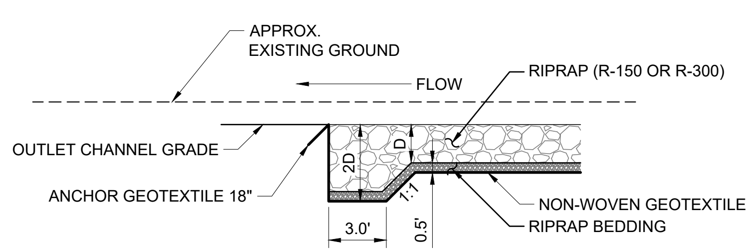
2 TYPICAL REHAB EMBANKMENT SECTION
0 5 10 20
SCALE IN FEET

FROM APPROX. STA. 3+63 TO STA. 9+00
FROM APPROX. STA. 34+00 TO STA. 39+95

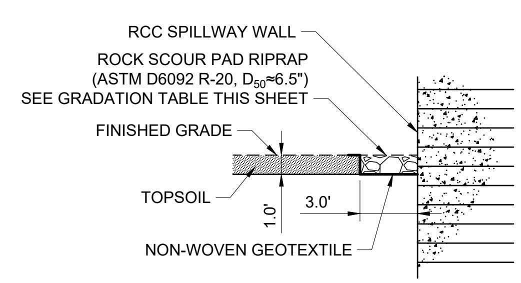


5 RIPRAP WAVE PROTECTION (STA. 12+50 TO STA. 23+00)
SCALE: 1" = 5'

0 5 10
SCALE IN FEET



3/18 3/38 RIPRAP TERMINATION DETAIL
NTS



4/## 4/43 ROCK SCOUR PAD DETAIL
1" = 5'

0 5 10
SCALE IN FEET

RIPRAP NOTES:

1. ROCK RIPRAP FOR THE WAVE BERM SHALL MEET THE GRADATION REQUIREMENTS OF ASTM D6092 FOR R-150 ROCK RIPRAP AS SHOWN IN THE TABLE ON THIS SHEET.
2. ALL ROCK RIPRAP SHALL COMPLY WITH CONSTRUCTION SPECIFICATION 61, AND MATERIAL SPECIFICATION 523.
3. SPALLS AND ROCK DUST THAT PASS A 3" SIEVE SHALL CONSIST OF LESS THAN 5 PERCENT BY WEIGHT.
4. ROCK PLACED AGAINST CONCRETE WORKS SHALL BE PLACED CAREFULLY TO AVOID DAMAGE.

ASTM D6092 R-300 RIPRAP GRADATION

SIZE (POUNDS)	% LIGHTER
700	100
300	50 - 100
150	15 - 50
45	0 - 15

ASTM D6092 R-150 RIPRAP GRADATION

SIZE (POUNDS)	% LIGHTER
300	100
150	50 - 100
60	15 - 50
20	0 - 15

ASTM D6092 R-20 RIPRAP GRADATION

SIZE (POUNDS)	% LIGHTER
45	100
20	50 - 100
10	15 - 50
2	0 - 15

RIPRAP BEDDING FOR R-150 RIPRAP (C-33 No. 2)

PARTICLE SIZE (INCHES)	% SMALLER
3	100
2.5	90 - 100
2	35 - 70
1.5	0 - 15
0.75	0 - 5

RIPRAP BEDDING FOR R-300 RIPRAP (C-33 No. 1)

PARTICLE SIZE (INCHES)	% SMALLER
4	100
3.5	90 - 100
2.5	25 - 60
1.5	0 - 15
0.75	0 - 5

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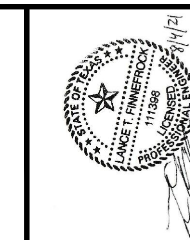

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TYPICAL EMBANKMENT SECTIONS AND NOTES

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
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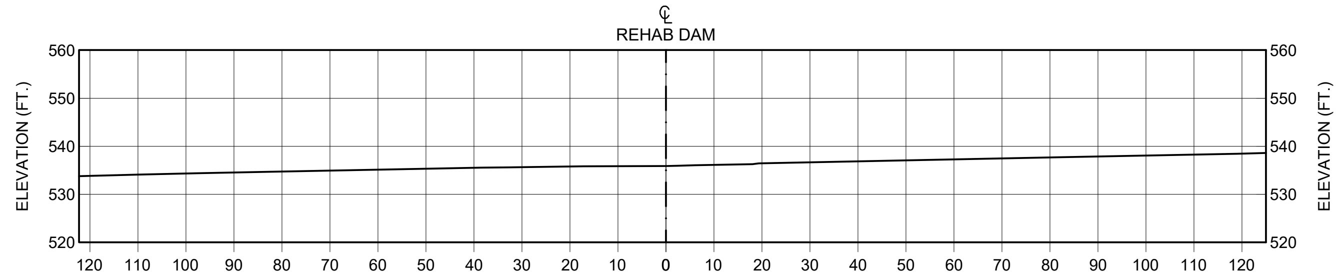

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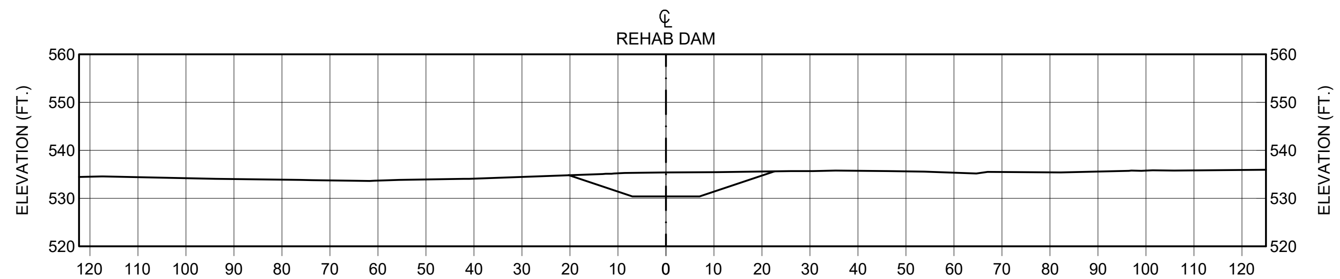
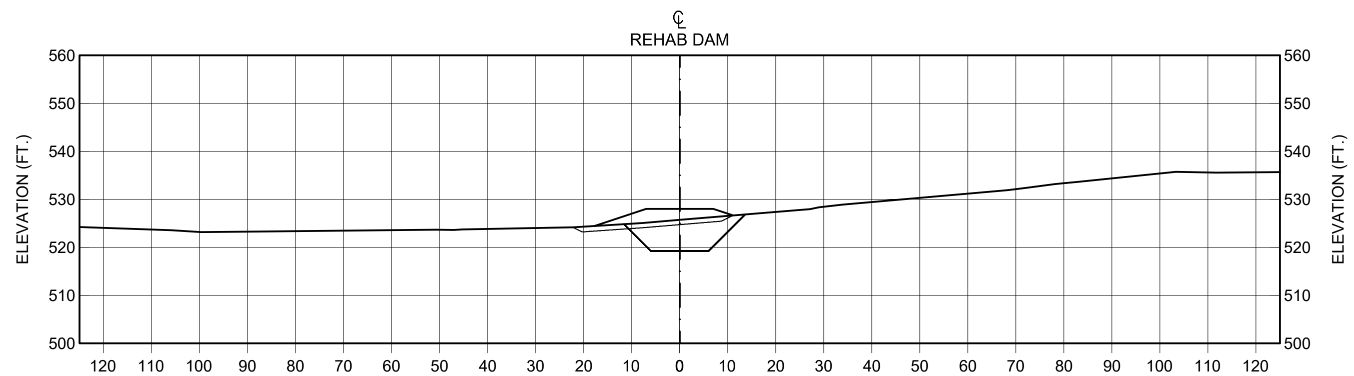


STA. 3+65.00



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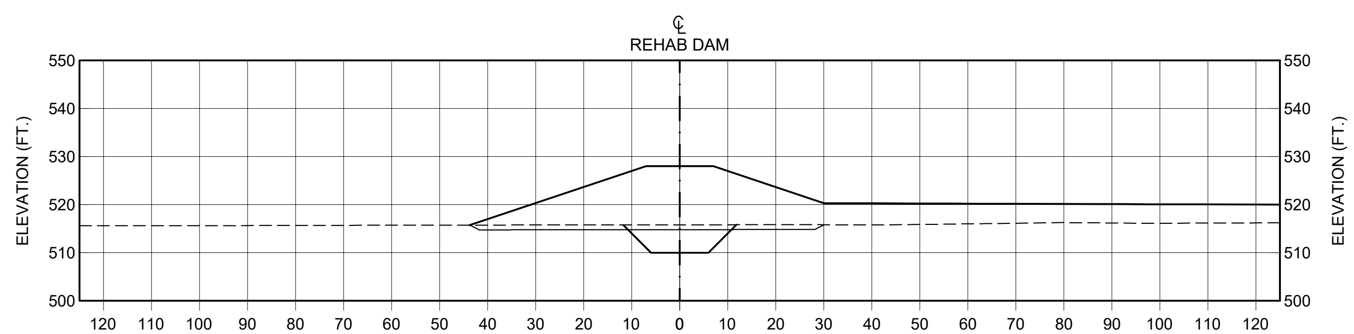

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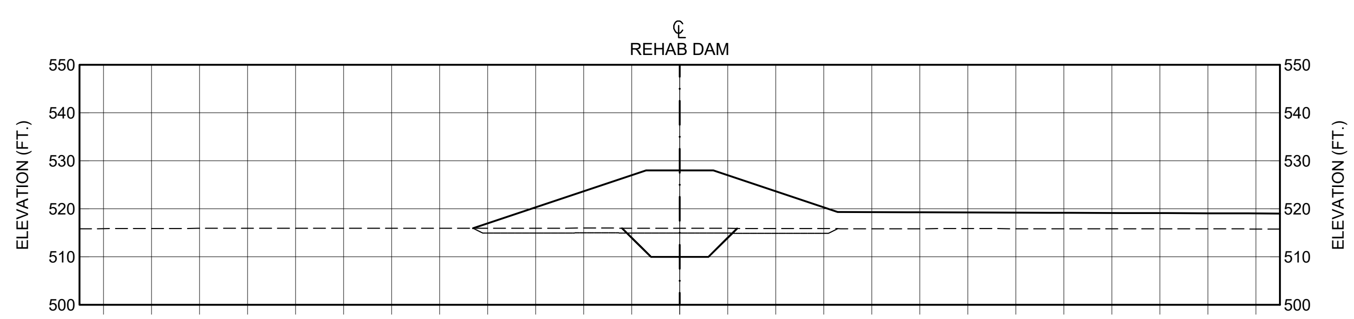

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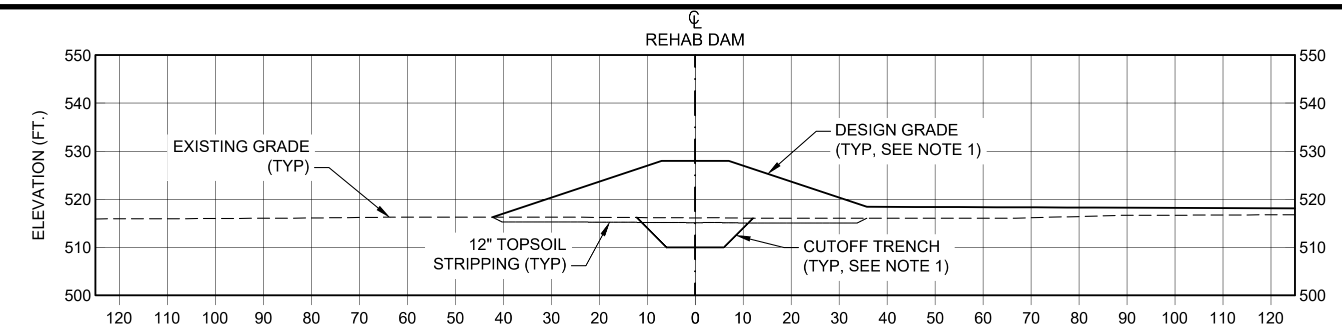

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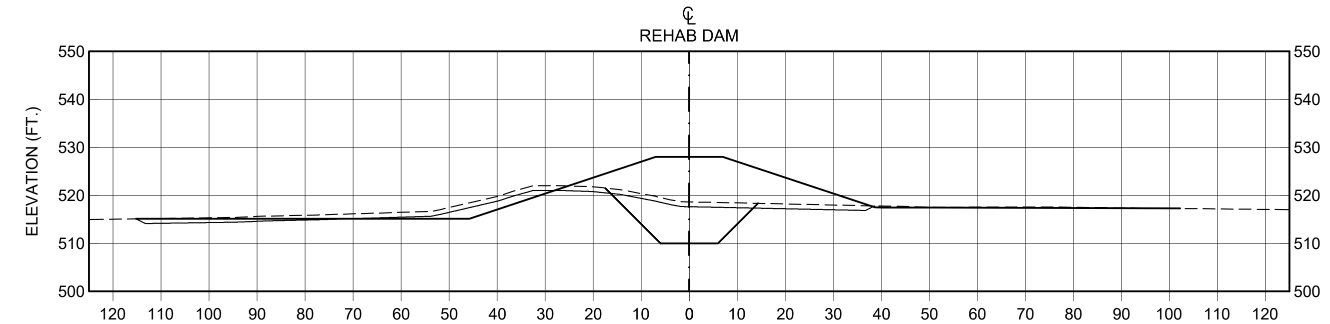

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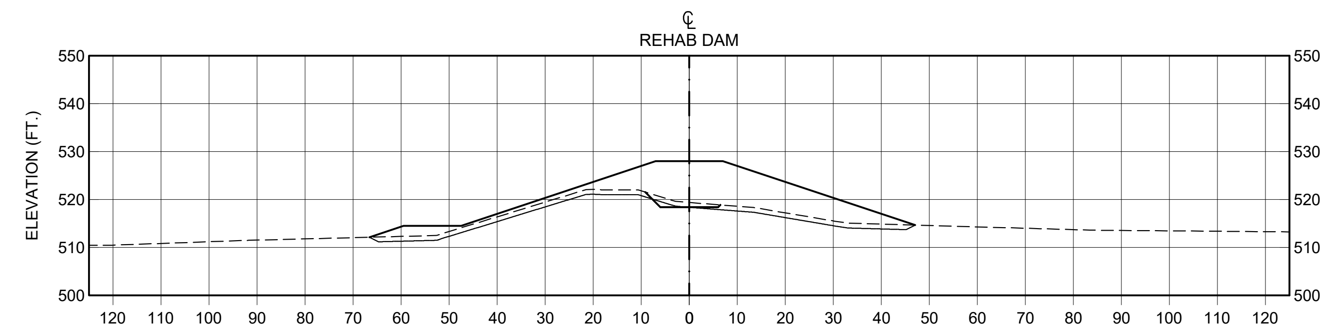

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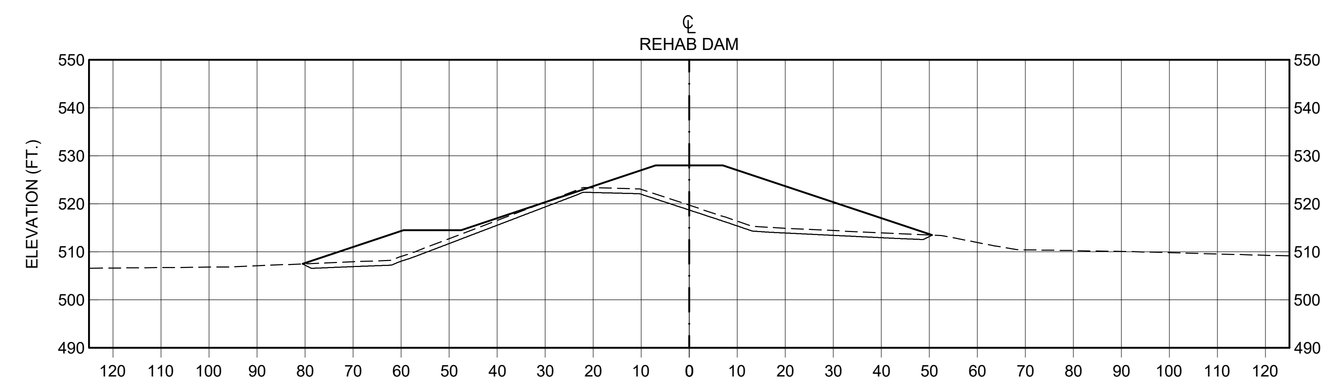

STA. 10+00.00

NOTES:

1. REFER TO SHEET 11 FOR EMBANKMENT TYPICAL SECTIONS.
2. REFER TO SHEET 49 FOR TOE DRAIN PLAN AND PROFILE.
3. REFER TO SHEETS 37 AND 38 FOR RCC AUXILIARY SPILLWAY PLAN AND PROFILES.

0 10 20 40
SCALE IN FEET (H & V)

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EMBANKMENT CROSS–SECTIONS (1 OF 5)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
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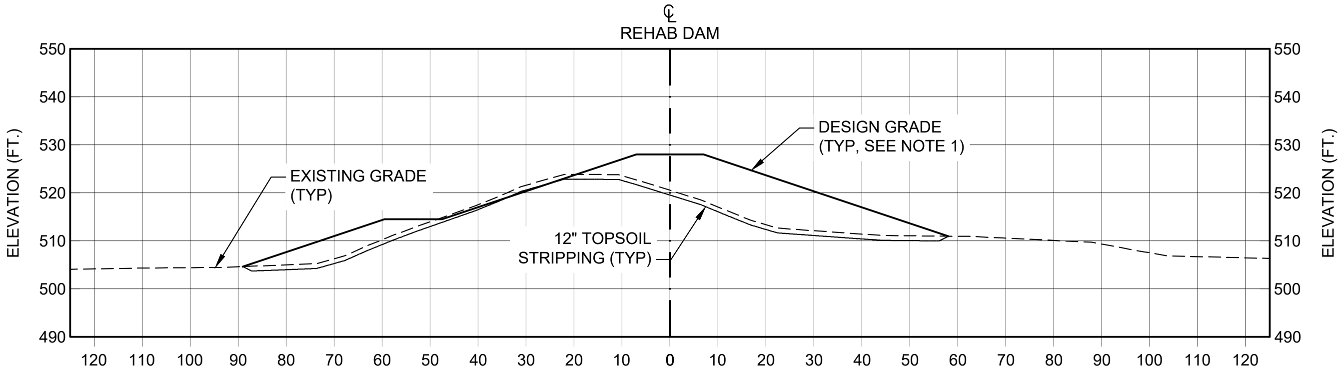

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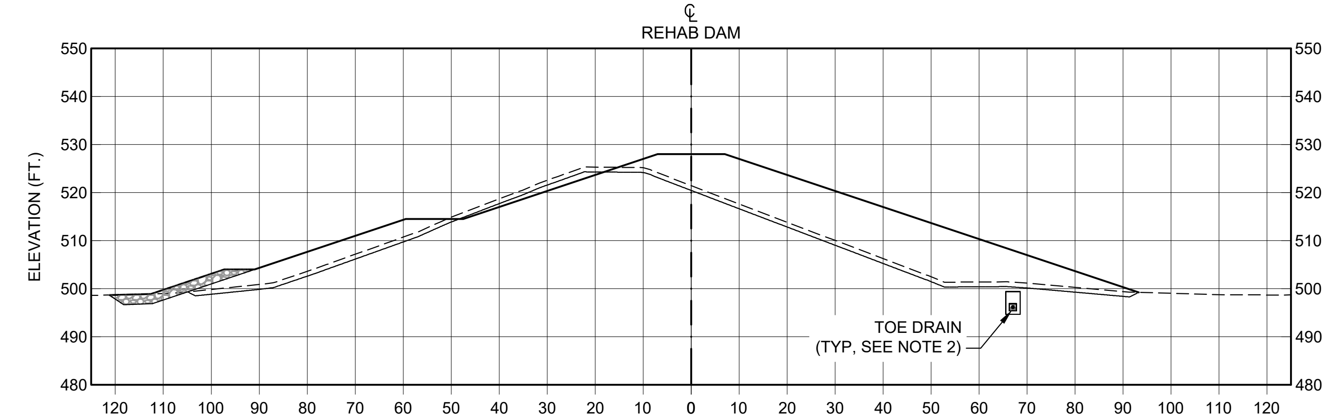

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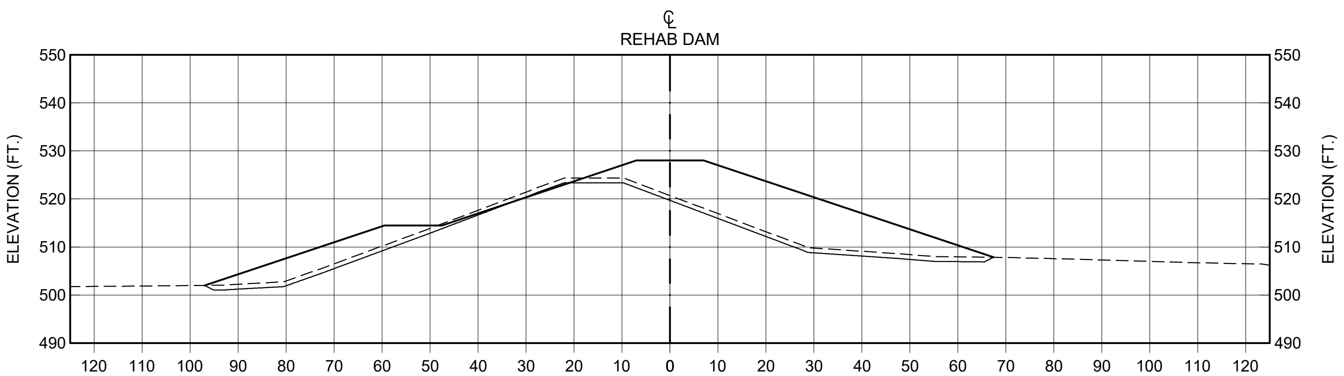

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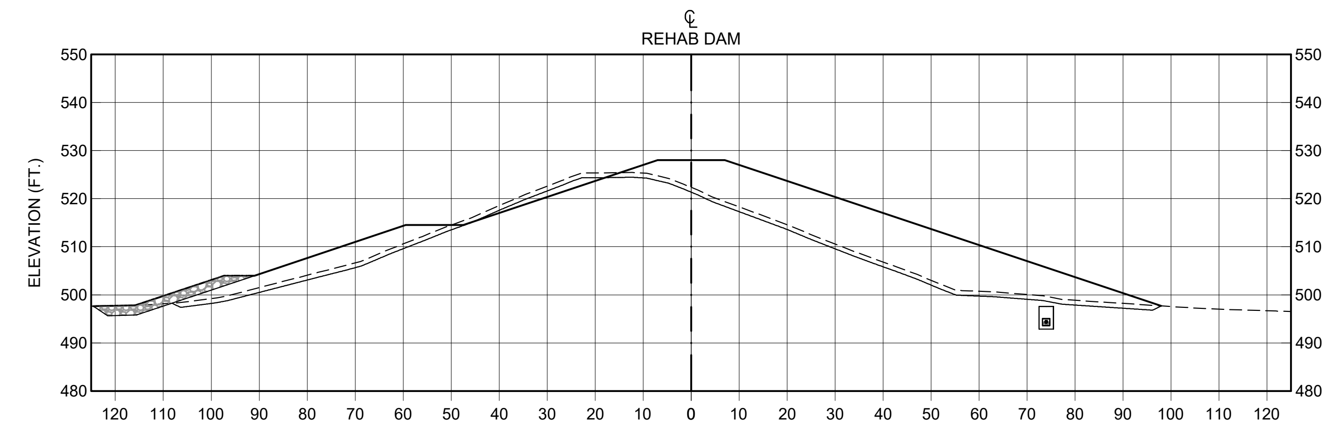

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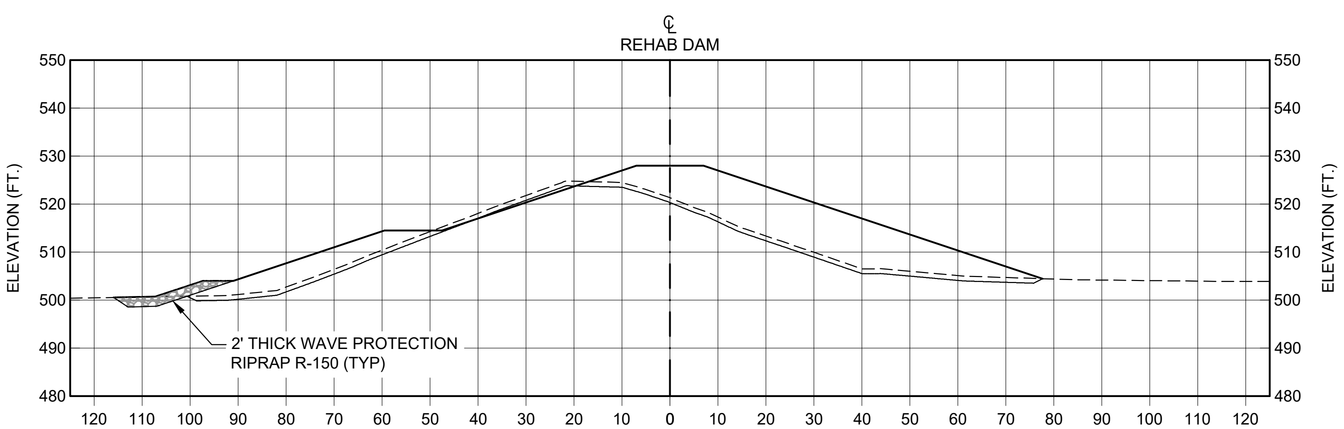

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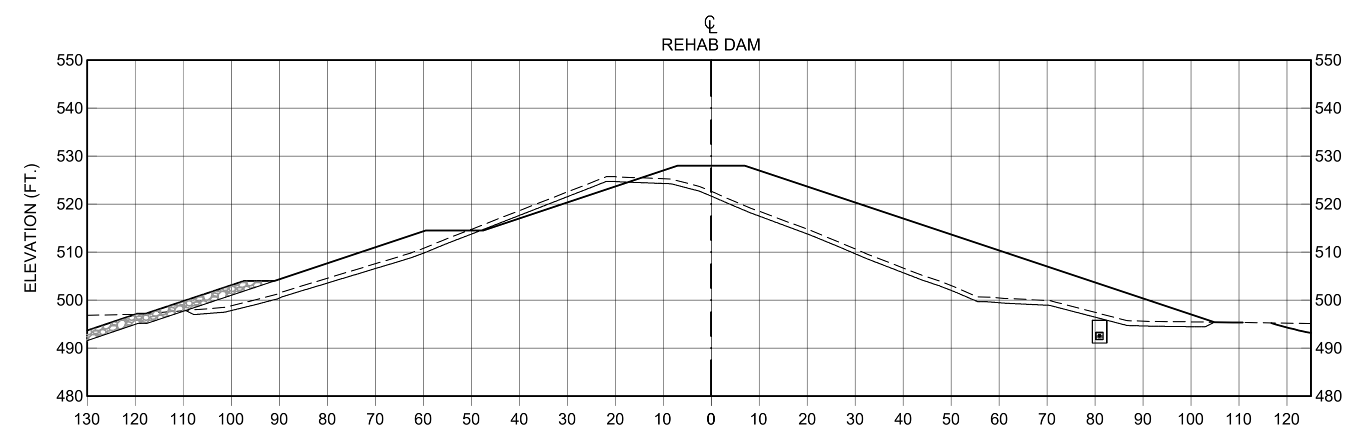

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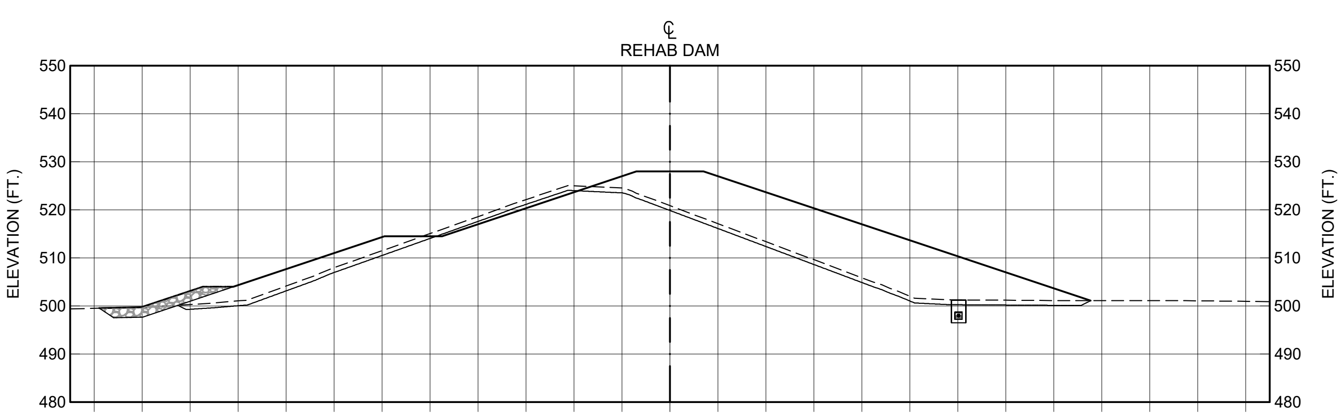

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NOTES:

1. REFER TO SHEET 11 FOR EMBANKMENT TYPICAL SECTIONS.
2. REFER TO SHEET 49 FOR TOE DRAIN PLAN AND PROFILE.
3. REFER TO SHEETS 37 AND 38 FOR RCC AUXILIARY SPILLWAY PLAN AND PROFILES.

0 10 20 40
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EMBANKMENT CROSS-SECTIONS (2 OF 5)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
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United States Department of Agriculture
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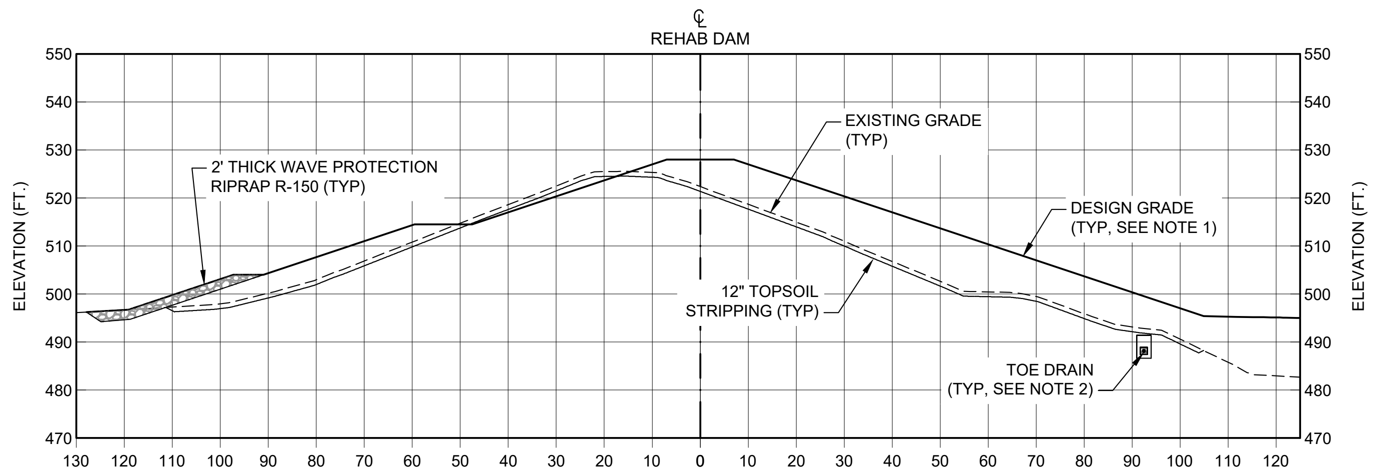

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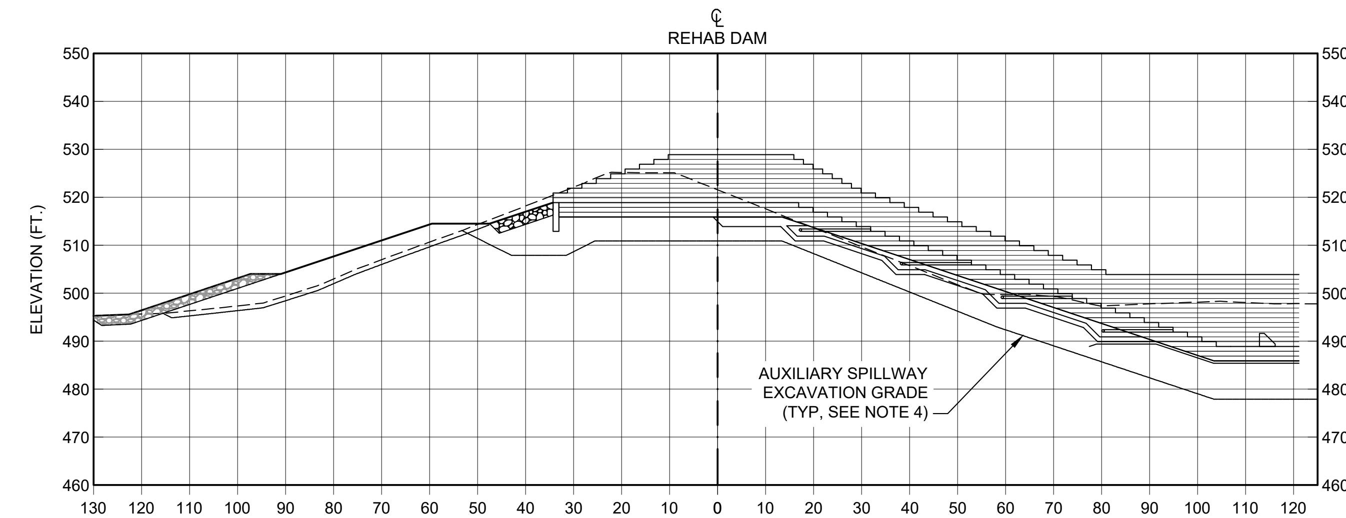

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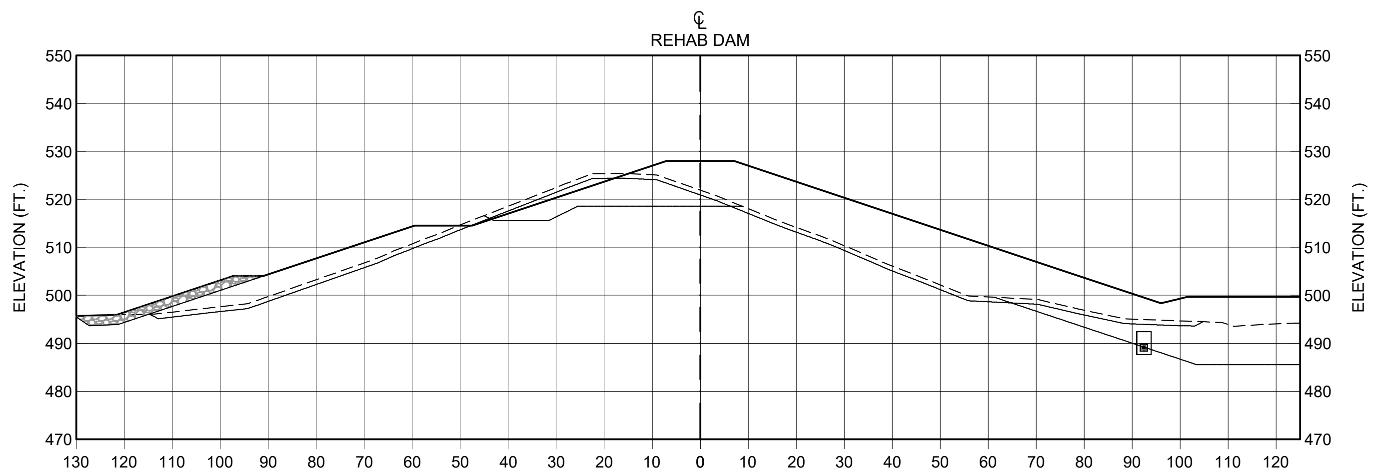

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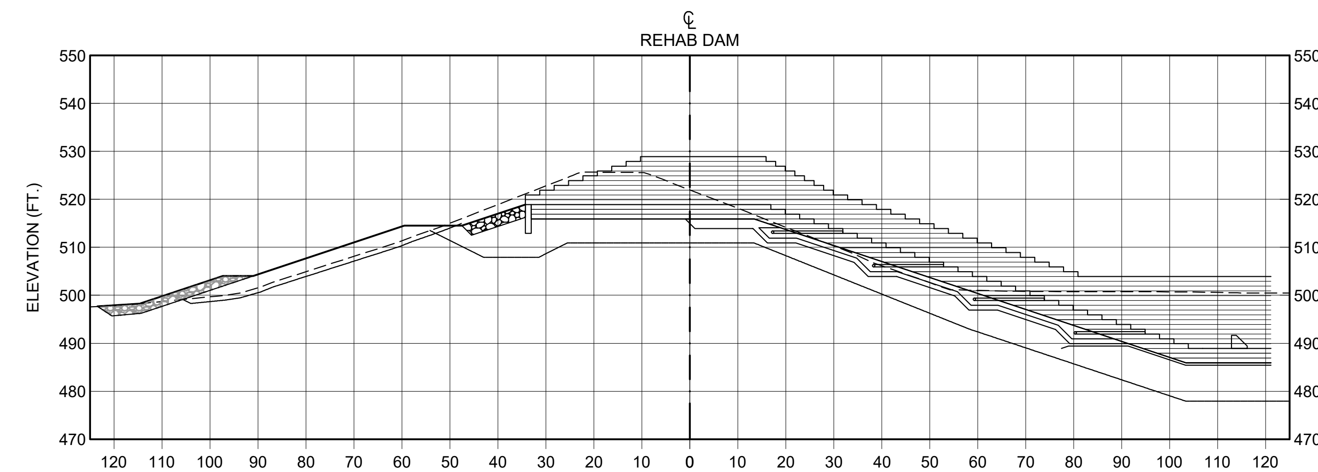

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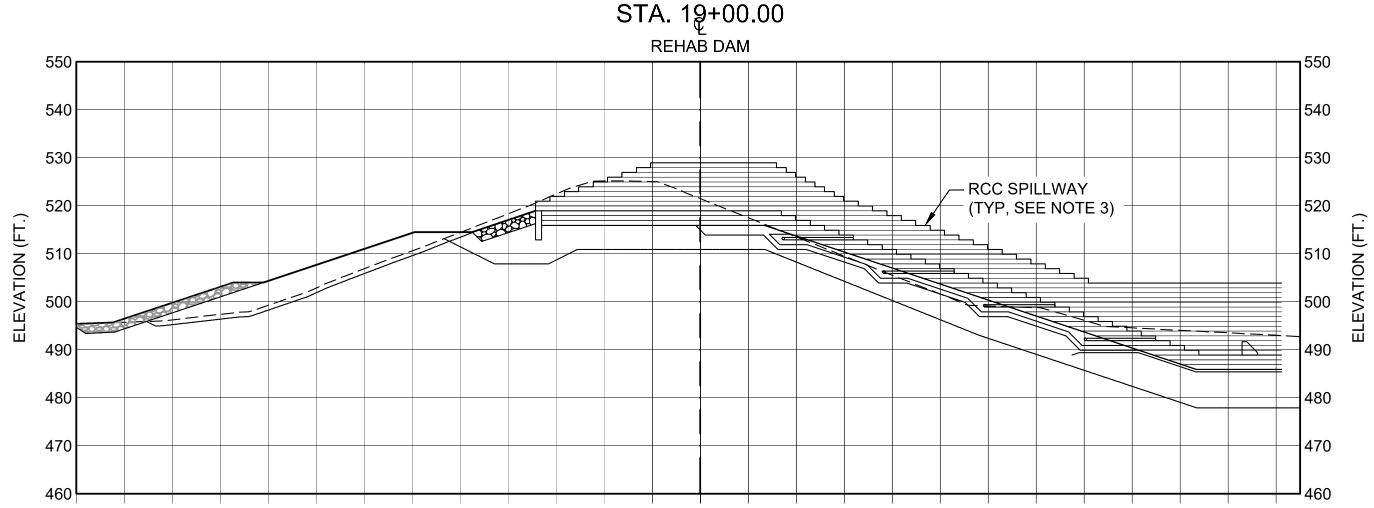

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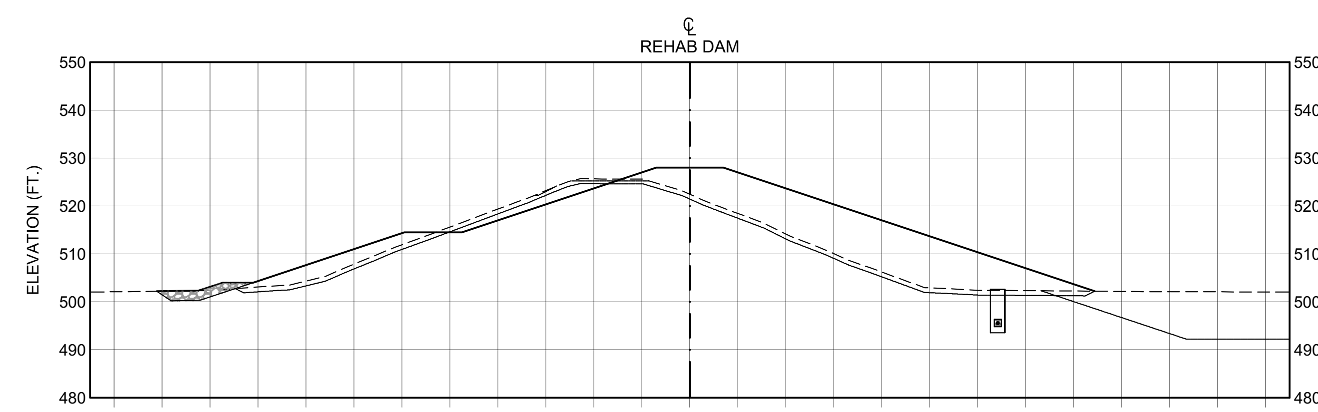

STA. 23+00.00

NOTES:

1. REFER TO SHEET 11 FOR EMBANKMENT TYPICAL SECTIONS.
2. REFER TO SHEET 49 FOR TOE DRAIN PLAN AND PROFILE.
3. REFER TO SHEETS 37 AND 38 FOR RCC AUXILIARY SPILLWAY PLAN AND PROFILES.
4. REFER TO SHEETS 40 AND 41 FOR RCC AUXILIARY SPILLWAY EXCAVATION PLAN AND SECTION.

0 10 20 40
SCALE IN FEET (H & V)

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 12_48.dwg
DATE CHECKED: 8/4/2021

EMBANKMENT CROSS–SECTIONS (3 OF 5)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 14
OF 83

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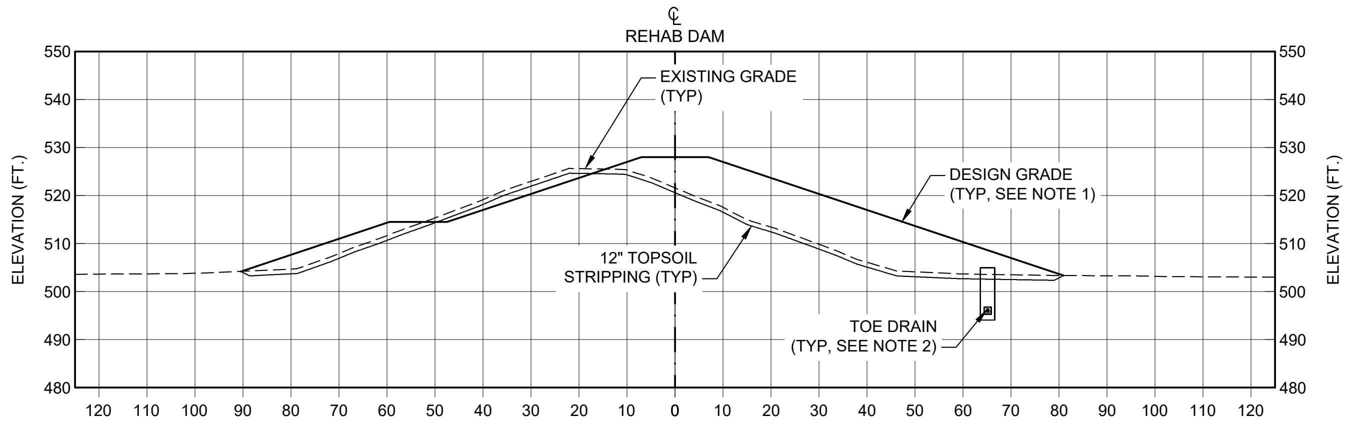

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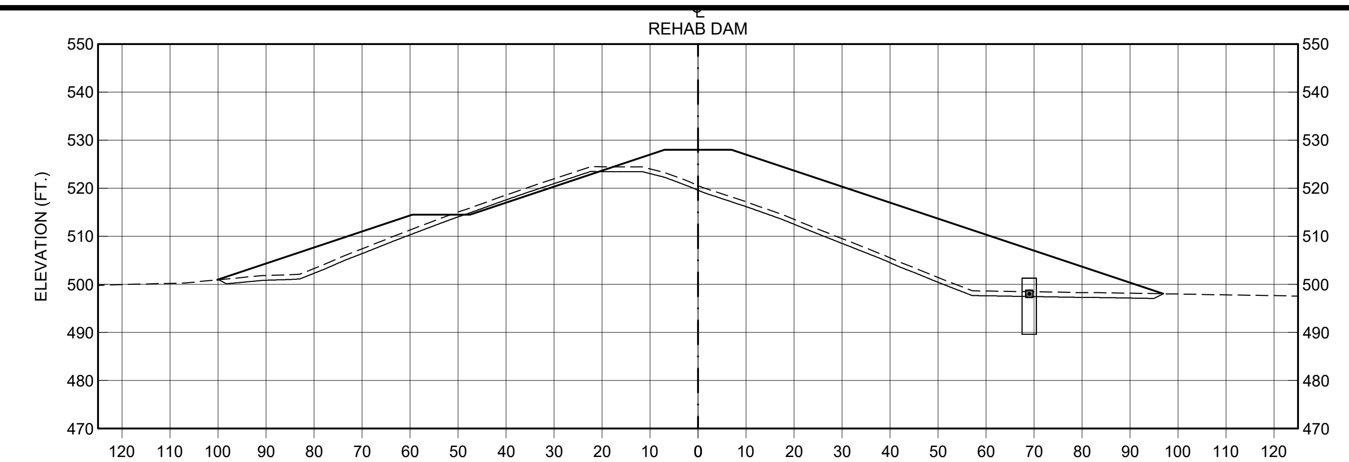

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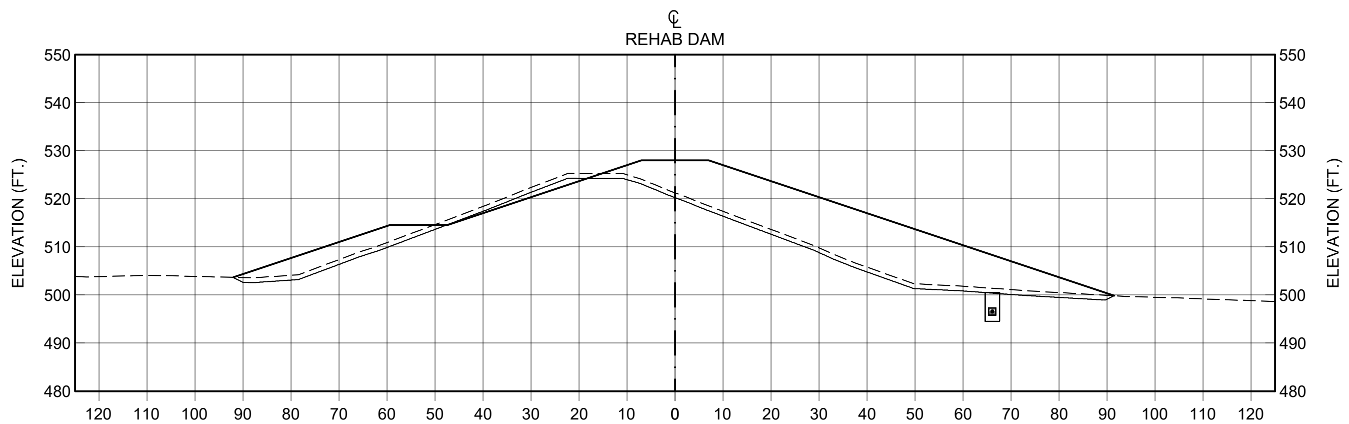

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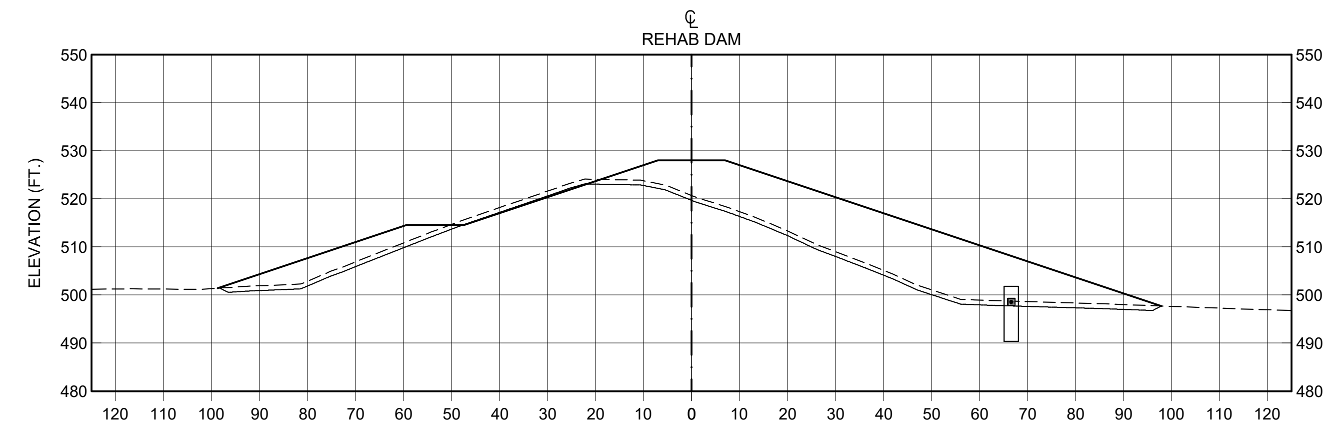

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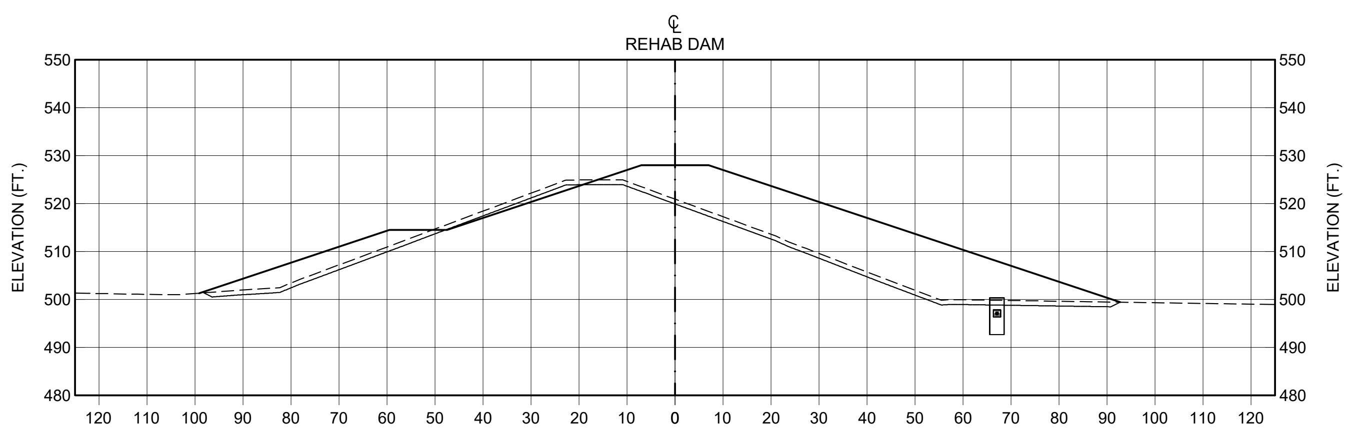

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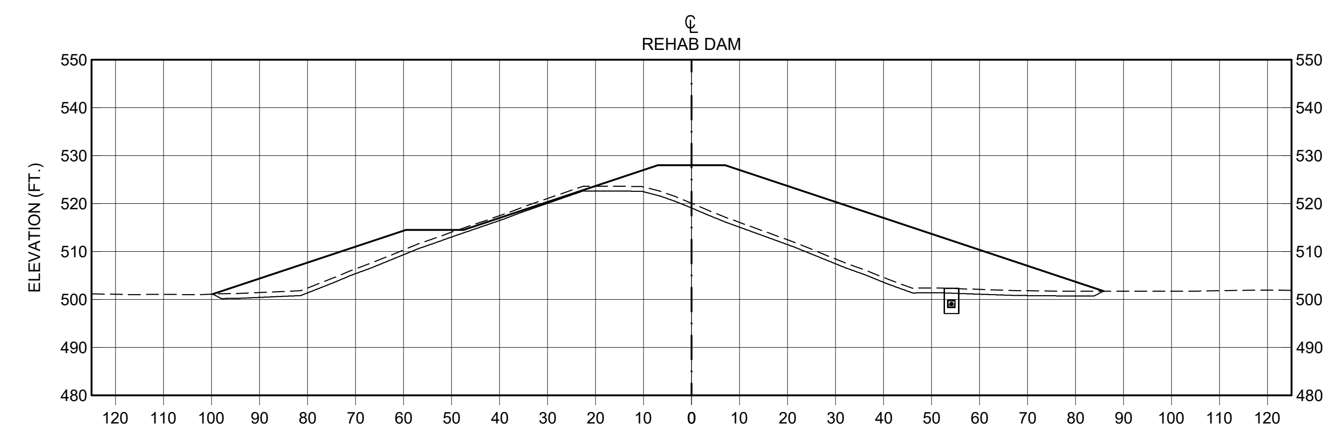

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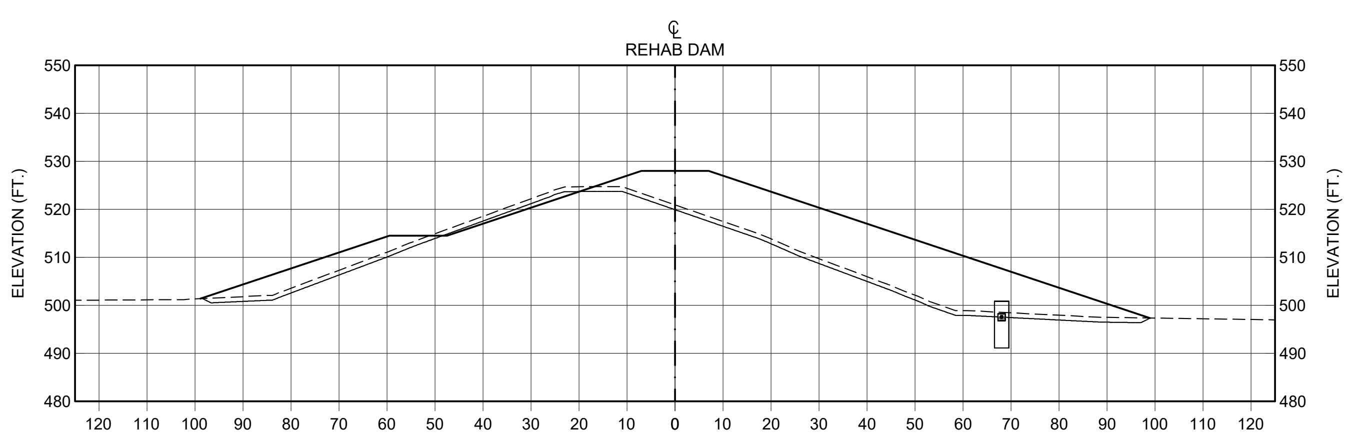

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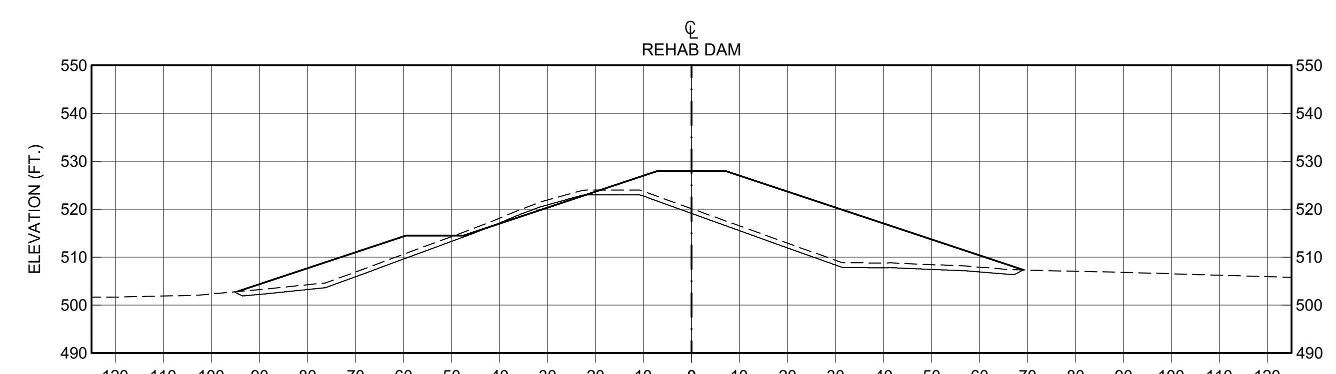

STA. 31+00.00

NOTES:

1. REFER TO SHEET 11 FOR EMBANKMENT TYPICAL SECTIONS.
2. REFER TO SHEET 49 FOR TOE DRAIN PLAN AND PROFILE.
3. REFER TO SHEETS 37 AND 38 FOR RCC AUXILIARY SPILLWAY PLAN AND PROFILES.

0 10 20 40
SCALE IN FEET (H & V)

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 - Sht 12_48.dwg
DATE CHECKED: 8/4/2021

EMBANKMENT CROSS-SECTIONS (4 OF 5)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX-EN-0754
SHEET NO. 15
OF 83

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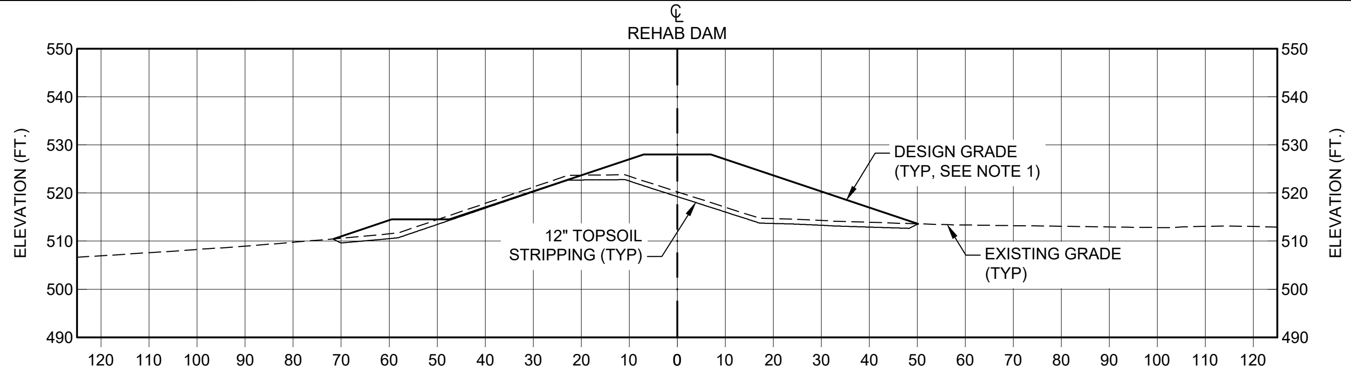

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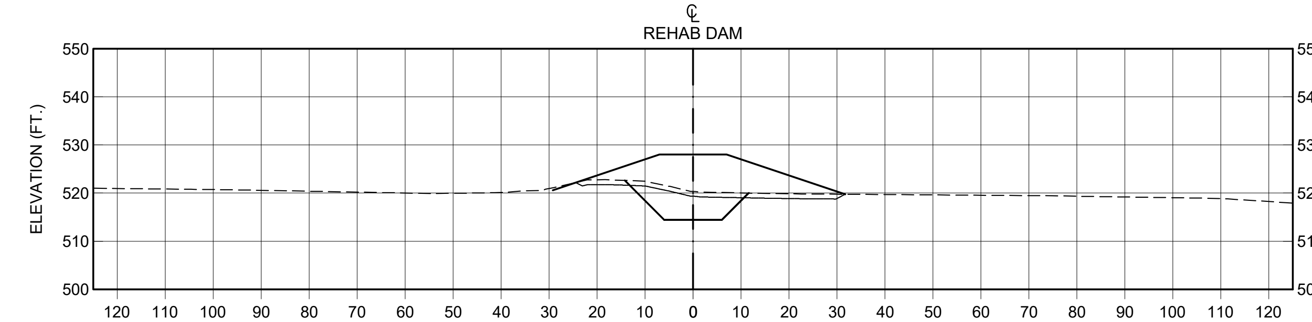

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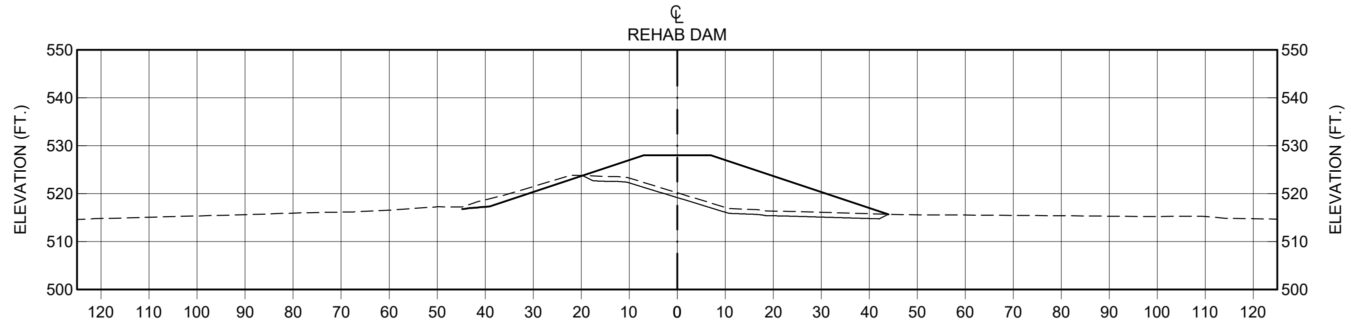

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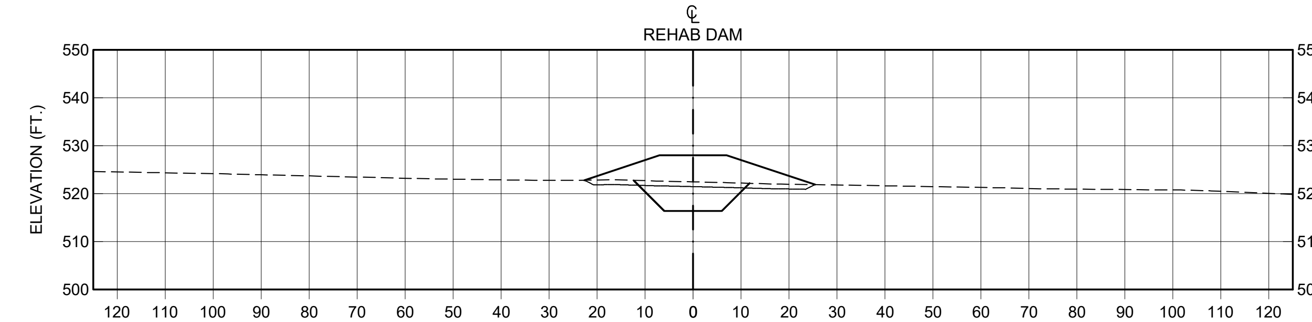

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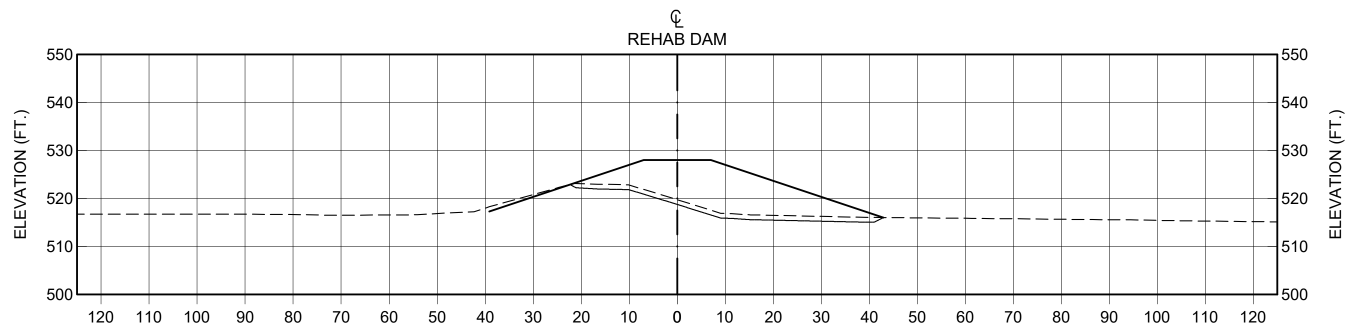

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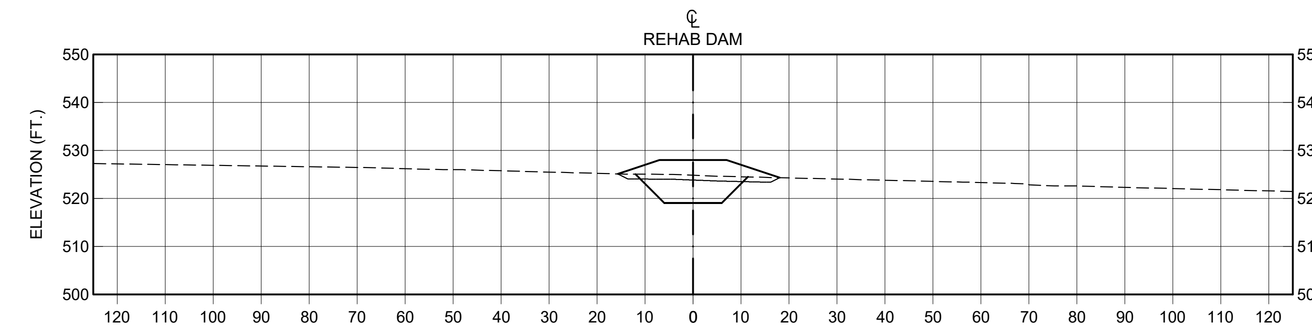

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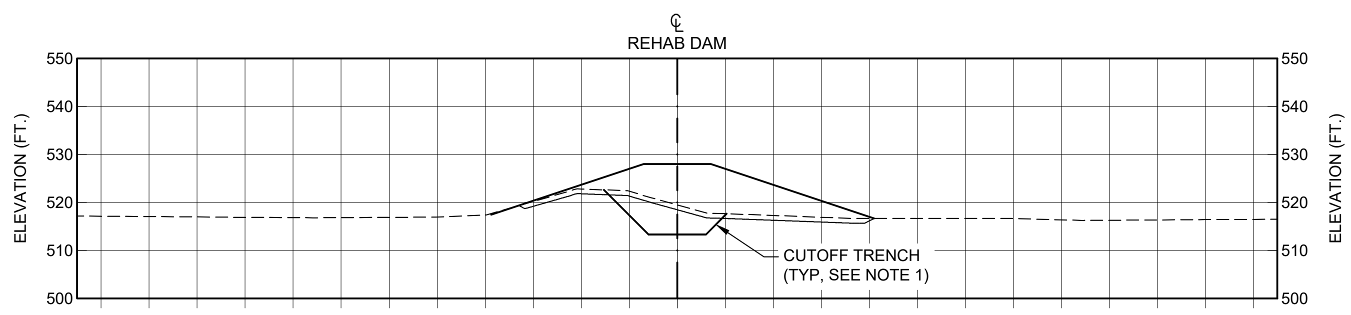

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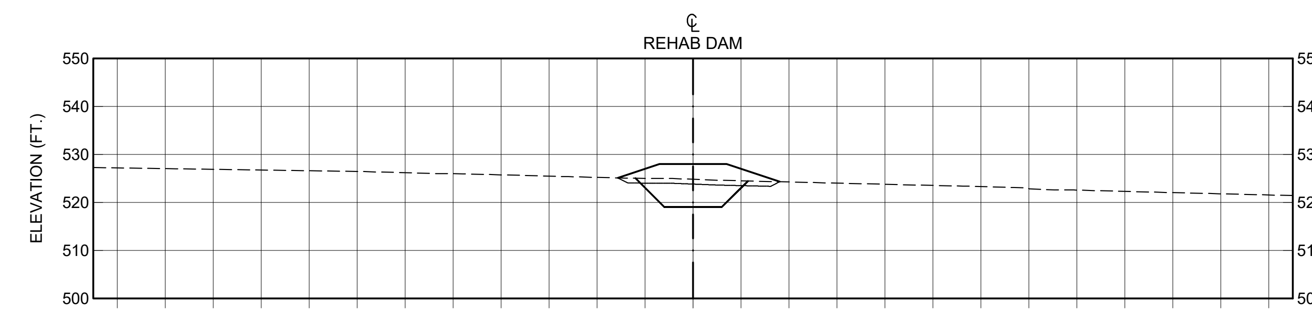

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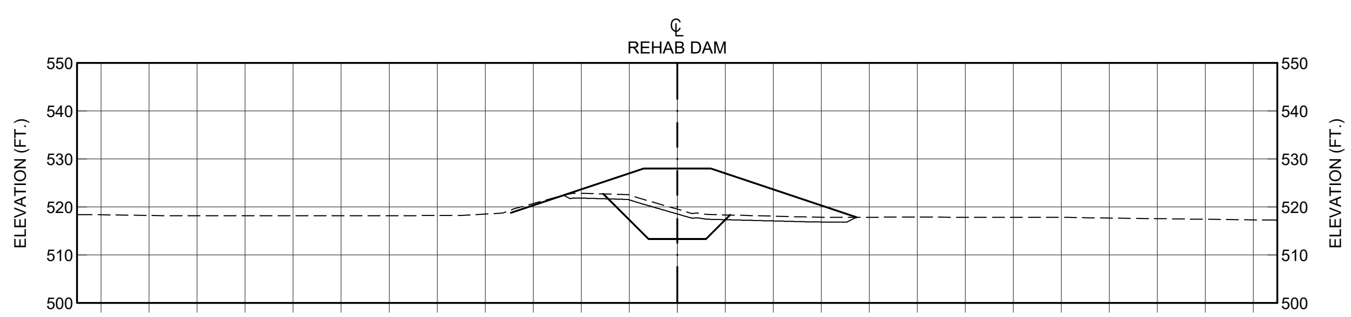


STA. 36+00.00

NOTES:

1. REFER TO SHEET 11 FOR EMBANKMENT TYPICAL SECTIONS.
2. REFER TO SHEET 49 FOR TOE DRAIN PLAN AND PROFILE.
3. REFER TO SHEETS 37 AND 38 FOR RCC AUXILIARY SPILLWAY PLAN AND PROFILES.

0 10 20 40
SCALE IN FEET (H & V)

REVISIONS		
DATE	APPROVED	TITLE

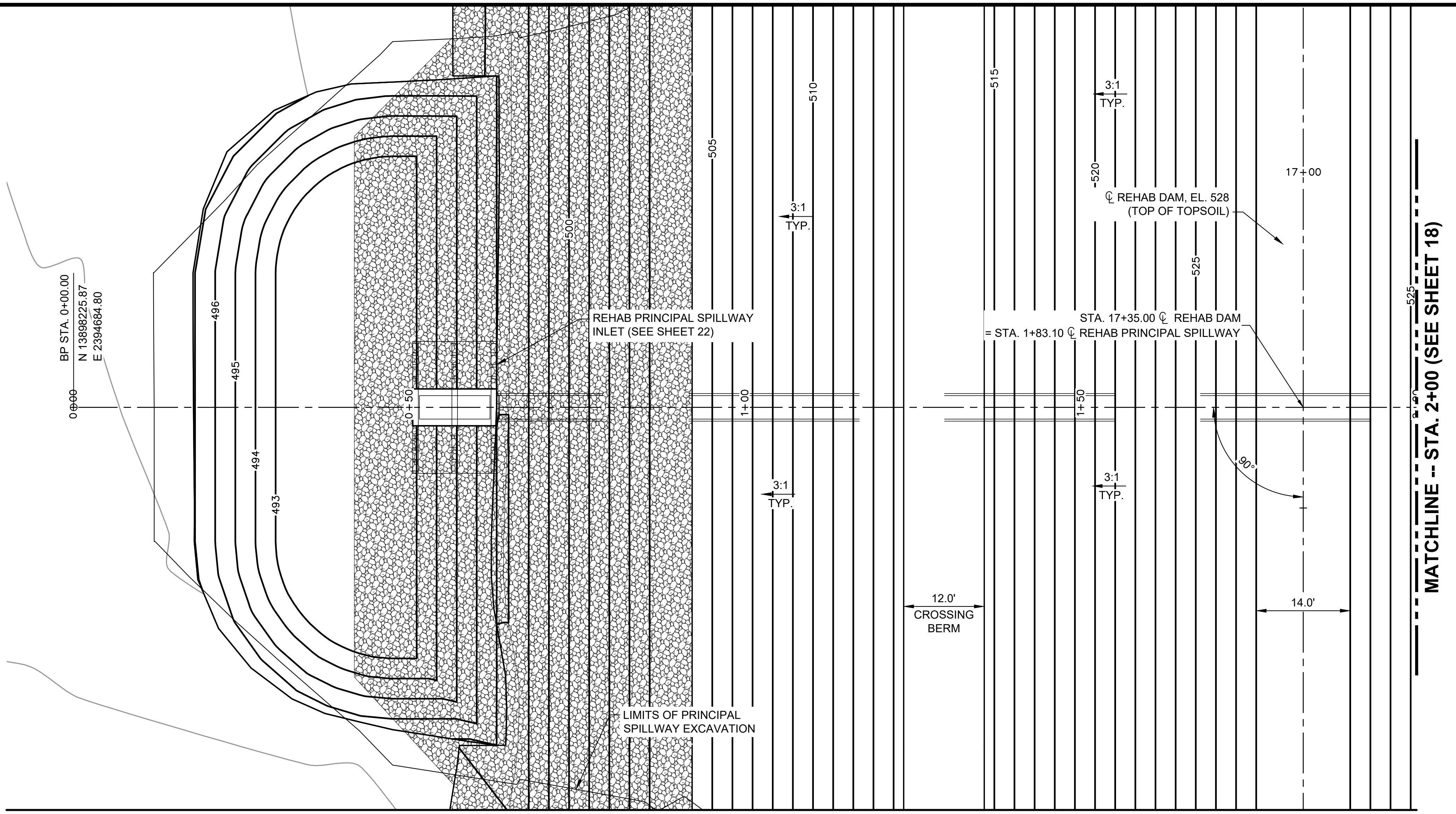
DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 12_48.dwg
DATE CHECKED: 8/4/2021

EMBANKMENT CROSS–SECTIONS (5 OF 5)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

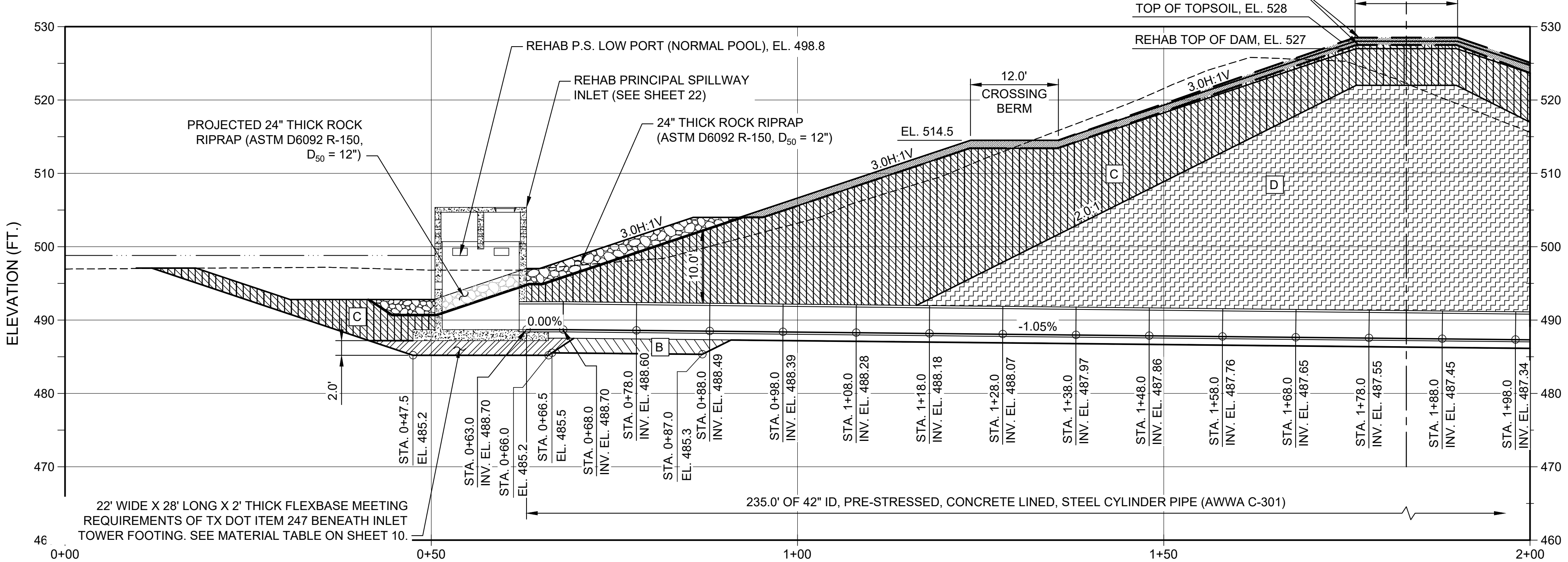
DRAWING NO. TX–EN–0754
SHEET NO. 16
OF 83



REHAB PRINCIPAL SPILLWAY PLAN (1 OF 2)

NOTES:

1. REFER TO FULL PLAN ON SHEET 8.



REHAB PRINCIPAL SPILLWAY PROFILE (1 OF 2)

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REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 17–20.dwg
DATE CHECKED: 8/4/2021

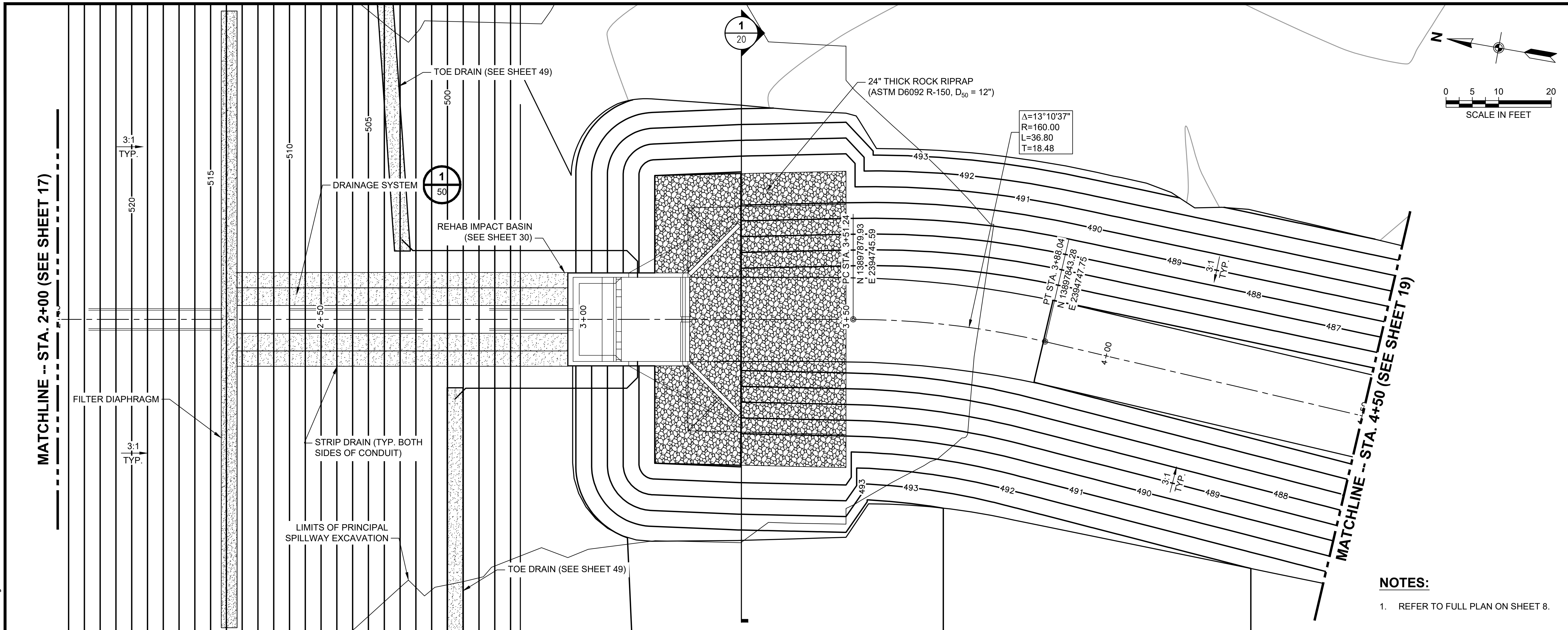
PRINCIPAL SPILLWAY PLAN & PROFILE (1 OF 2)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754

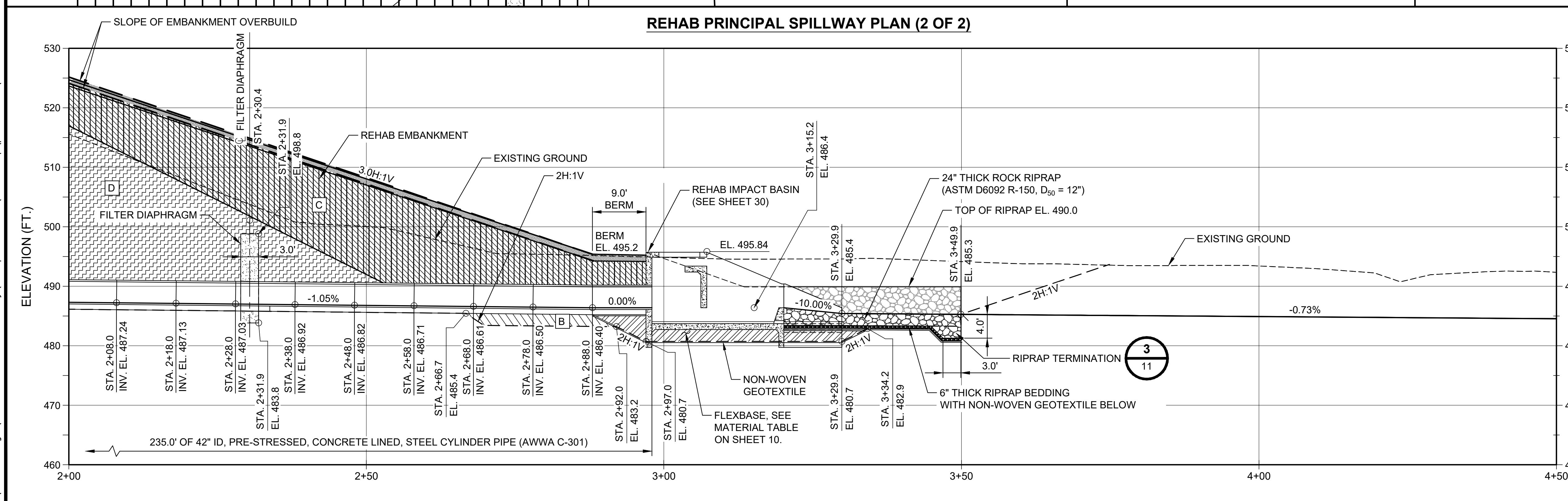
SHEET NO. 17 OF 83



NOTES:

1. REFER TO FULL PLAN ON SHEET 8.

REHAB PRINCIPAL SPILLWAY PLAN (2 OF 2)



REHAB PRINCIPAL SPILLWAY PROFILE (2 OF 2)

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 17–20.dwg
DATE CHECKED: 8/4/2021

PRINCIPAL SPILLWAY PLAN & PROFILE (2 OF 2)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754

SHEET NO. 18 OF 83

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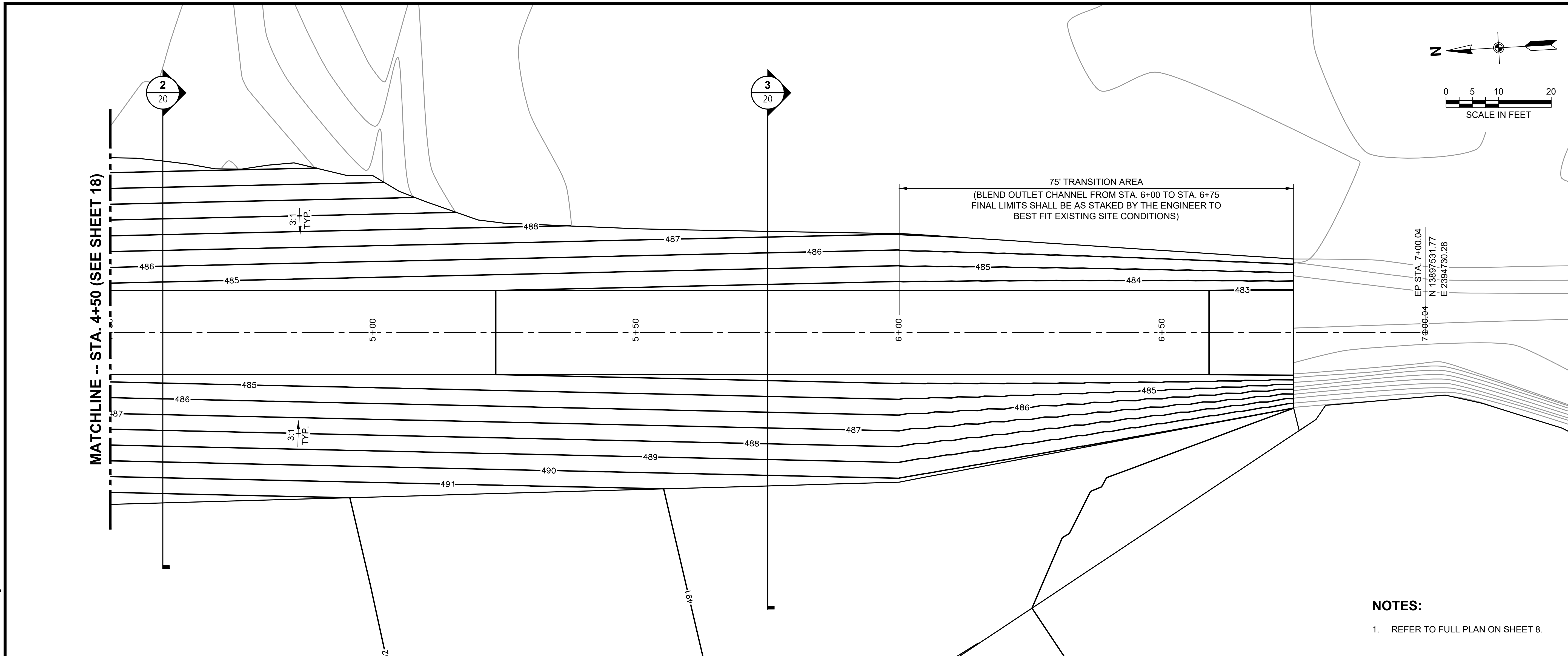
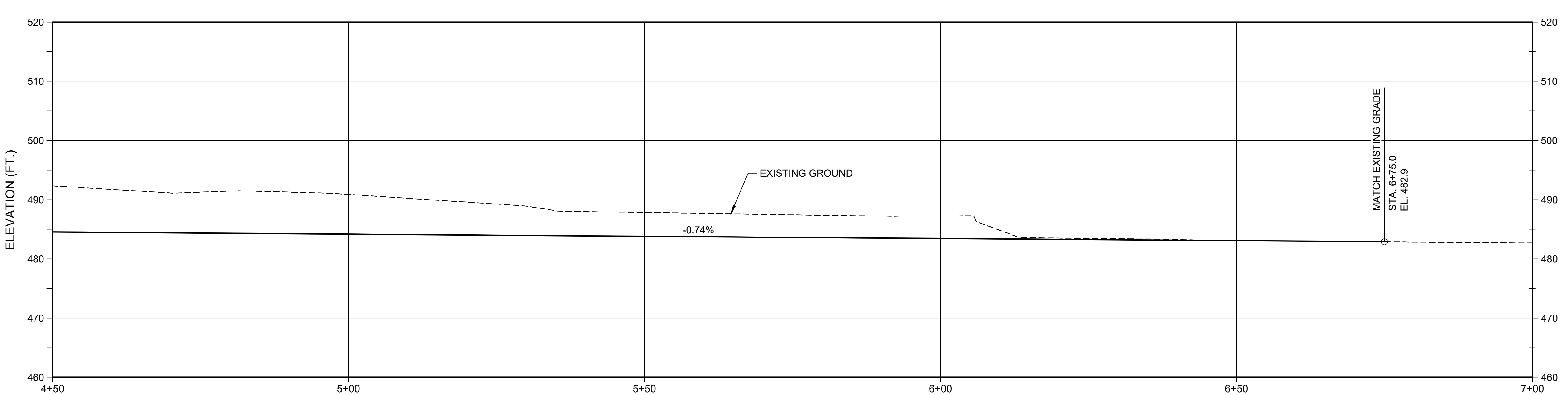


NOTES:

1. REFER TO FULL PLAN ON SHEET 8.

PRINCIPAL SPILLWAY OUTLET CHANNEL PLAN (2 OF 2)



0 5 10 20
SCALE IN FEET

PRINCIPAL SPILLWAY OUTLET CHANNEL PROFILE (2 OF 2)

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 17–20.dwg
DATE CHECKED: 8/4/2021

PRINCIPAL SPILLWAY OUTLET CHANNEL PLAN & PROFILE

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 19
OF 83

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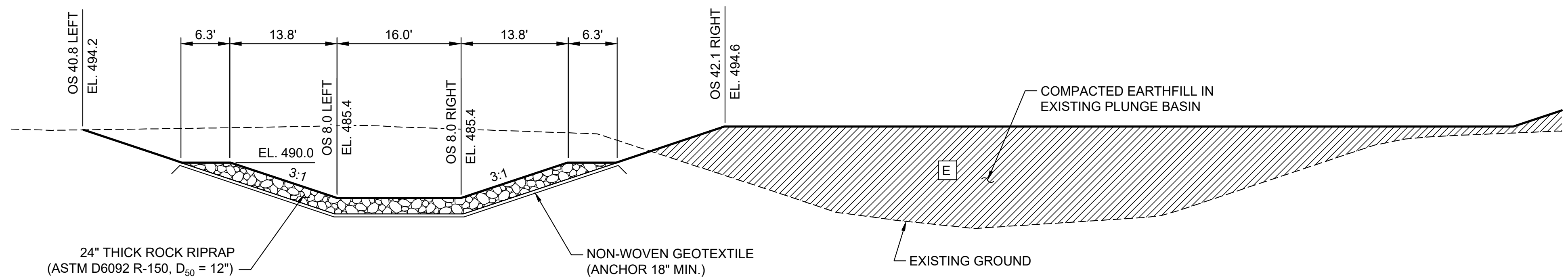
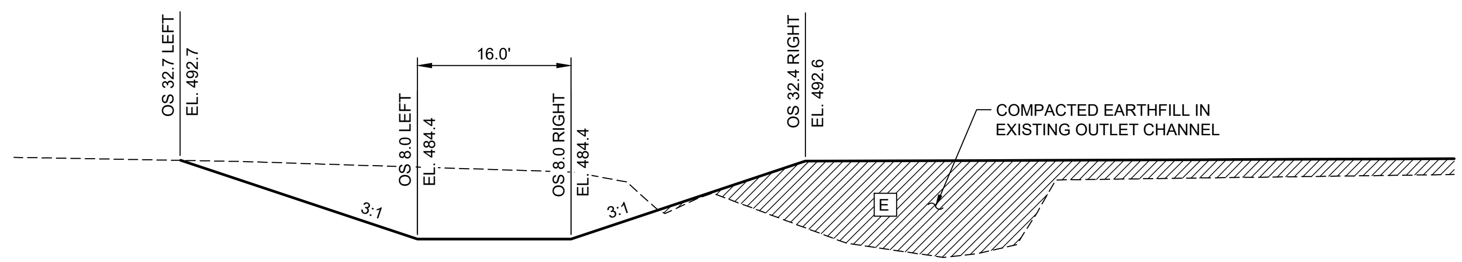


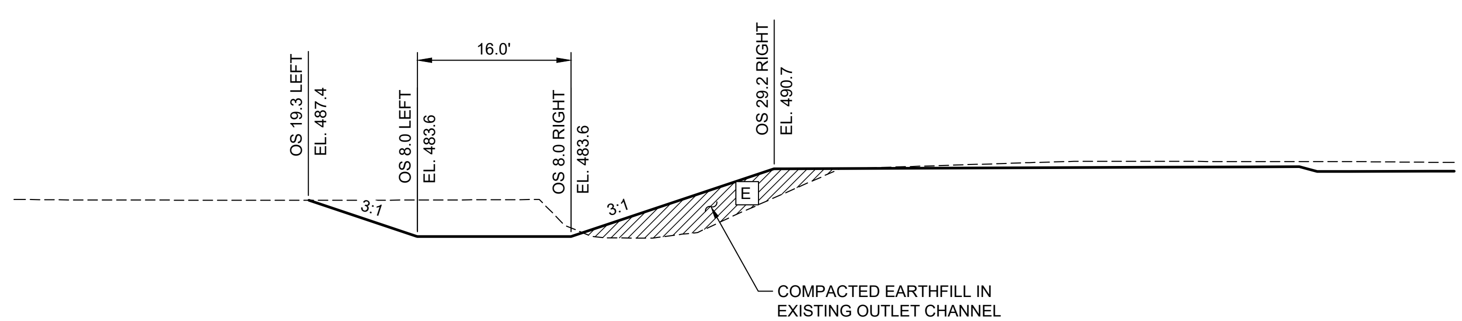
1/18 TYPICAL PRINCIPAL SPILLWAY OUTLET CHANNEL SECTION

SCALE: 1" = 10'



2/19 TYPICAL PRINCIPAL SPILLWAY OUTLET CHANNEL SECTION

SCALE: 1" = 10'



3/19 TYPICAL PRINCIPAL SPILLWAY OUTLET CHANNEL SECTION

SCALE: 1" = 10'

0 5 10 20
SCALE IN FEET

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 17–20.dwg
DATE CHECKED: 8/4/2021

PRINCIPAL SPILLWAY OUTLET CHANNEL DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 20
OF 83

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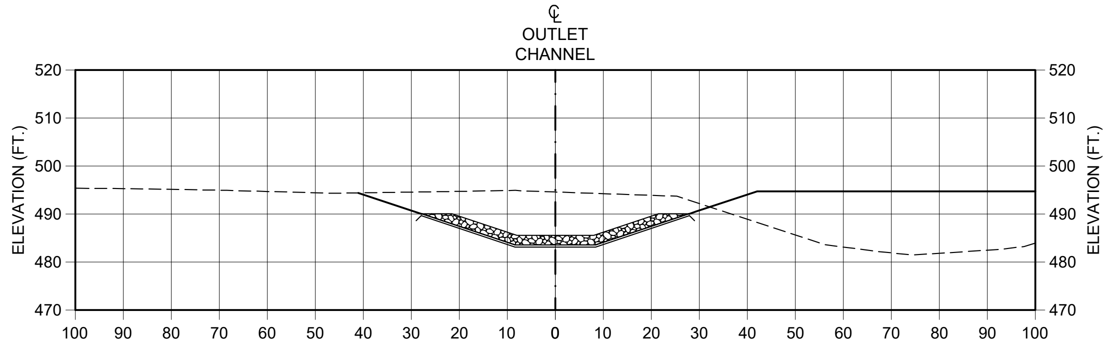

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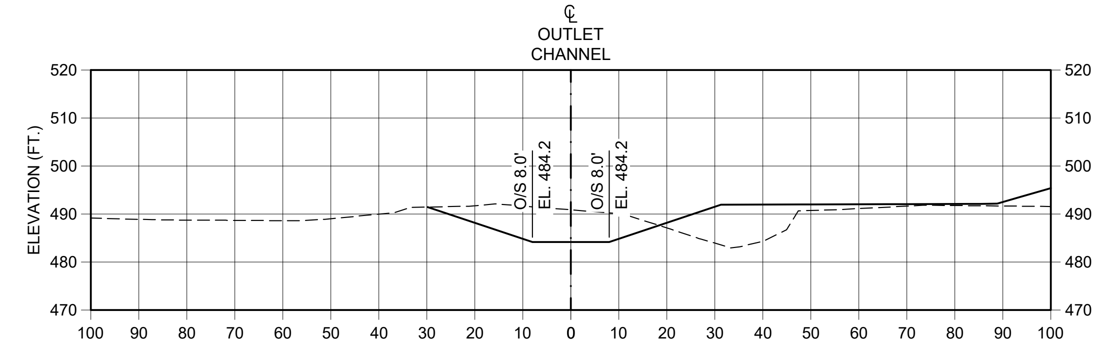
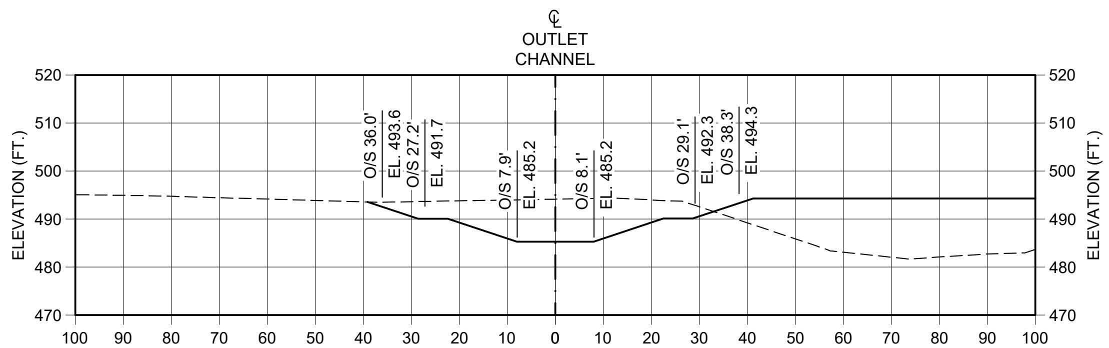


STA. 5+00.00



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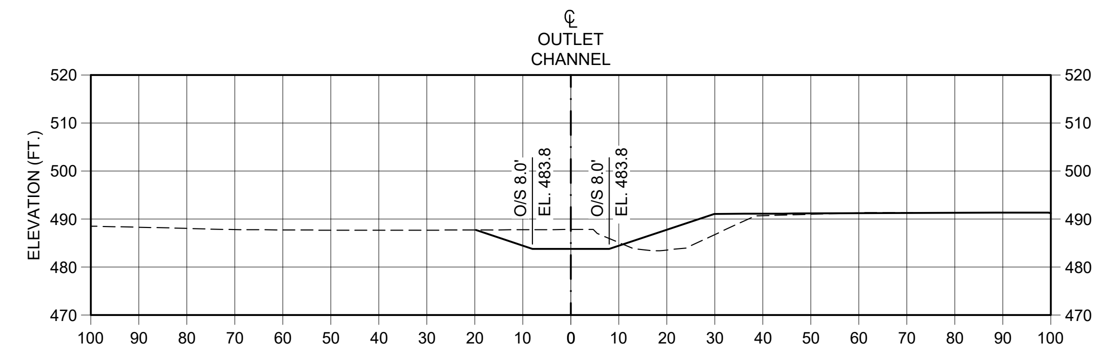

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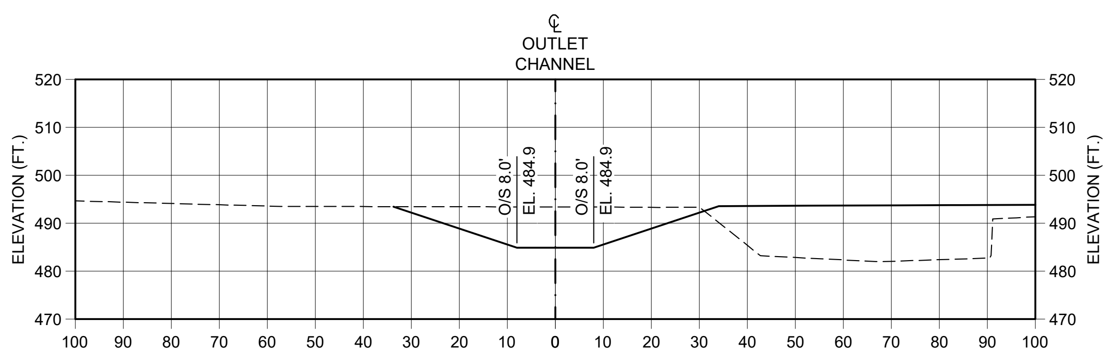

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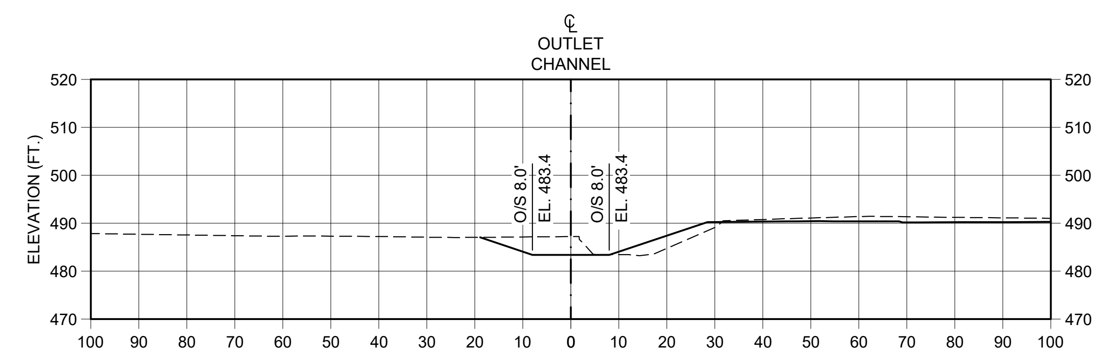

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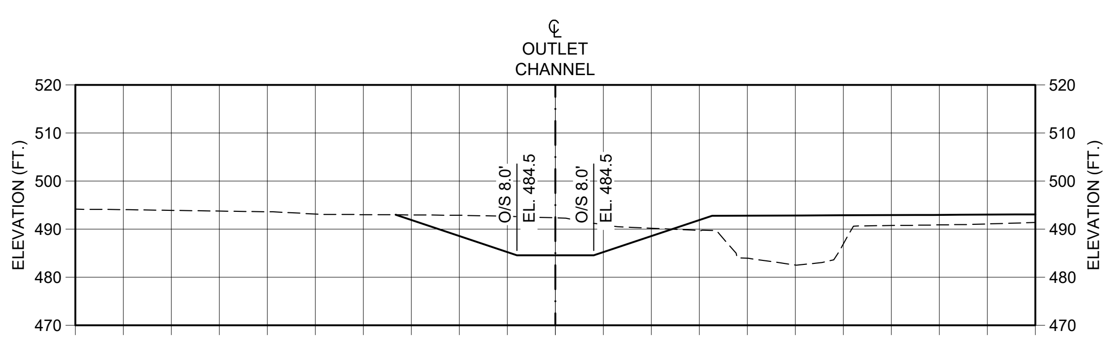

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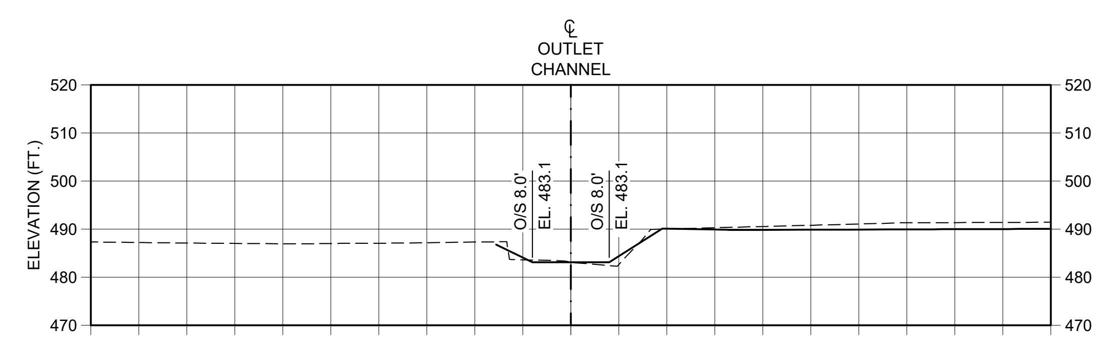

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0 10 20 40
SCALE IN FEET (H & V)

REVISIONS		
DATE	APPROVED	TITLE

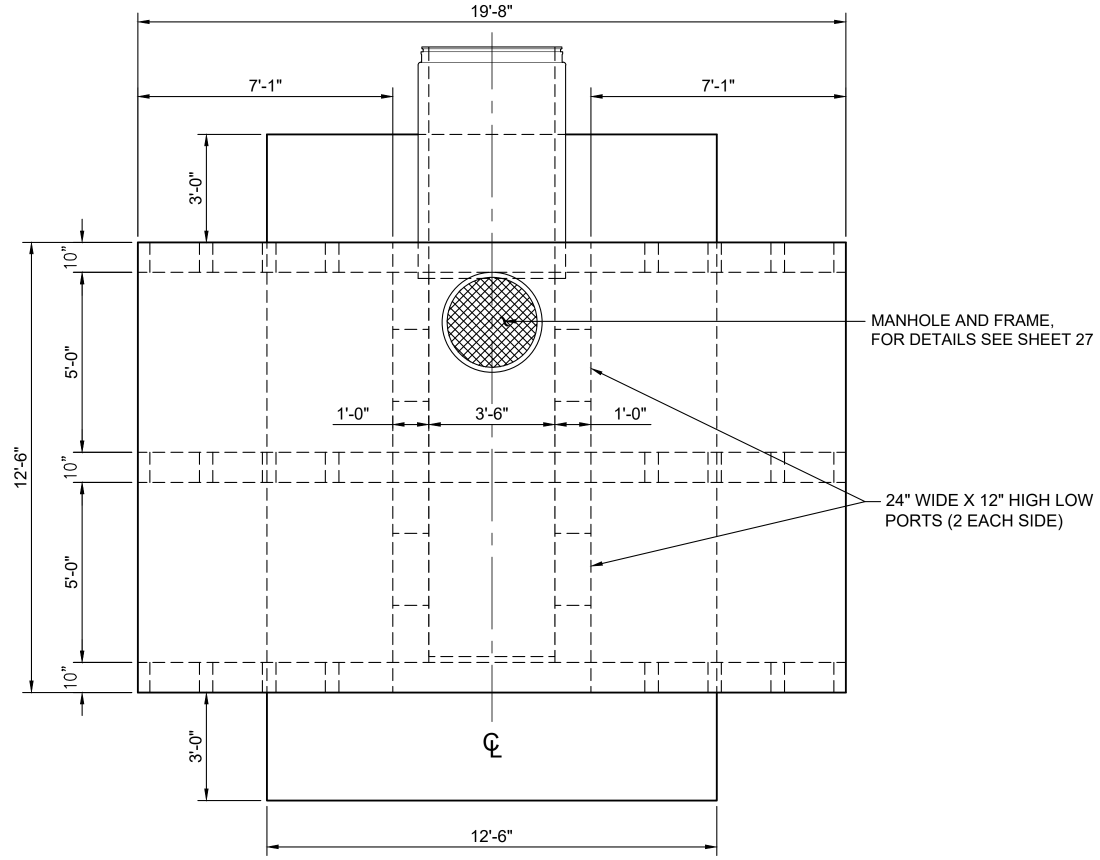
DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 12_48.dwg
DATE CHECKED: 8/4/2021

PRINCIPAL SPILLWAY OUTLET CHANNEL CROSS–SECTIONS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

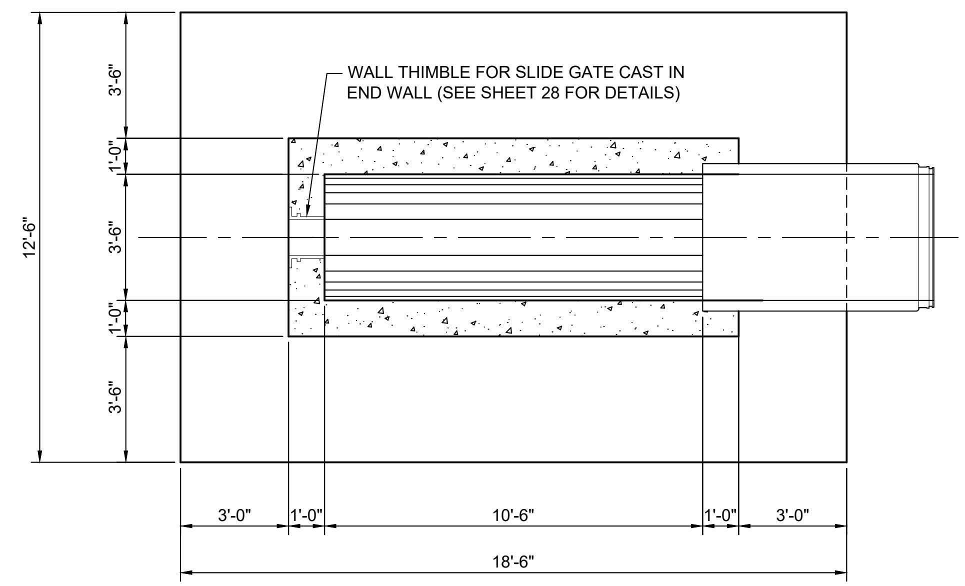
United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 21
OF 83



TOP SLAB PLAN

0 1 2 4
SCALE IN FEET

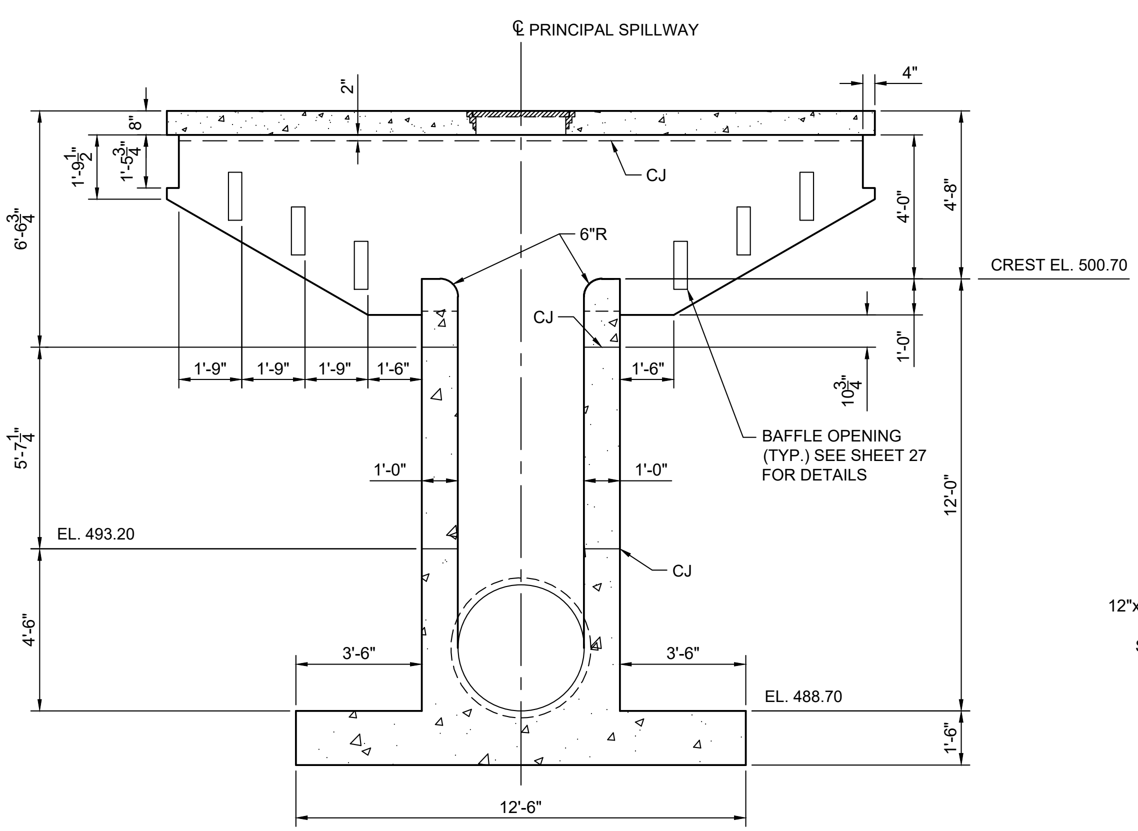


SECTION A-A

0 1 2 4
SCALE IN FEET

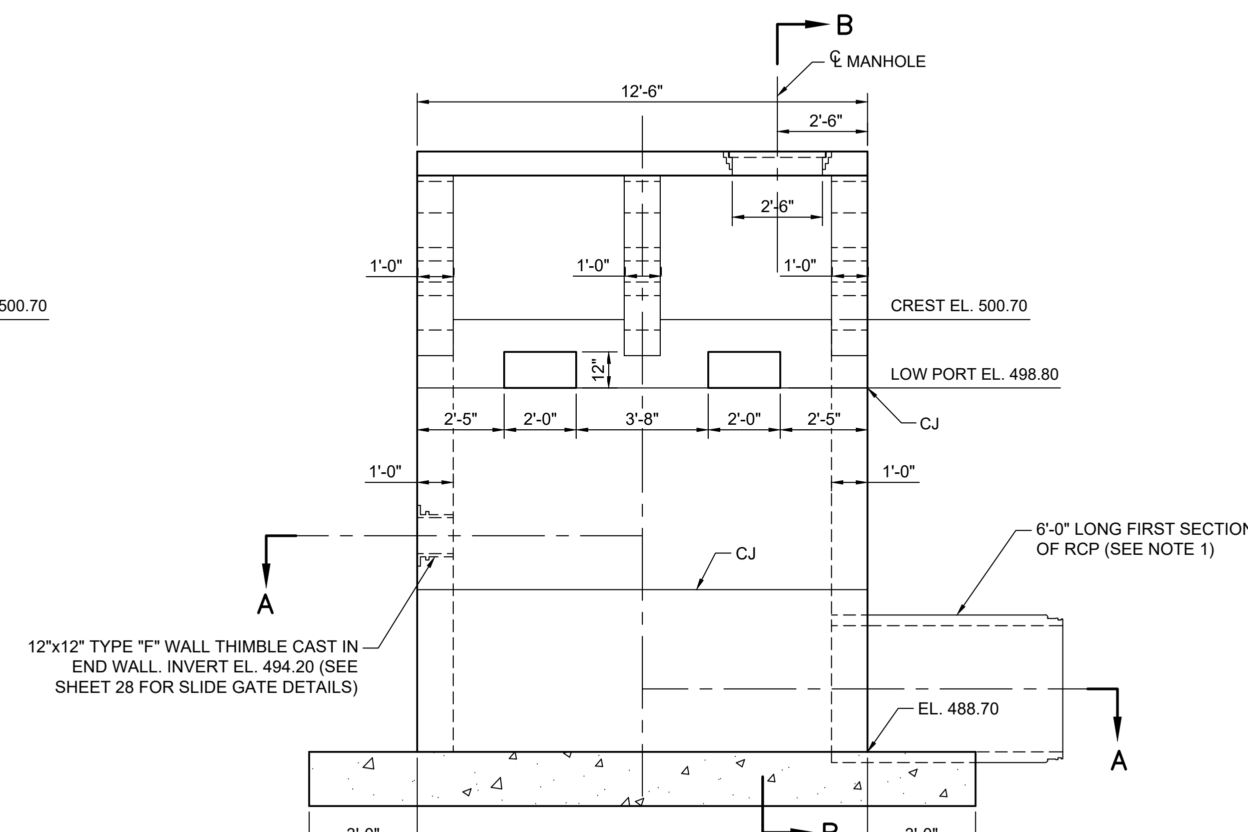
NOTES:

1. CAST INITIAL 6'-0" LONG PIPE SECTION INTO PLACE DURING CONCRETE PLACEMENT FOR INLET STRUCTURE.
2. REINFORCEMENT NOT SHOWN. SEE SHEETS 23 TO 26 FOR DETAILS.
3. SEE SHEET 28 FOR SLIDE GATE SECTIONS AND DETAILS.
4. SEE SHEET 29 FOR RCP SECTIONS AND DETAILS.
5. CHAMFER ALL EXPOSED EDGES 3/4 INCH.



SECTION B-B

0 1 2 4
SCALE IN FEET



SIDEWALL ELEVATION

0 1 2 4
SCALE IN FEET

REVISIONS		
DATE	APPROVED	TITLE

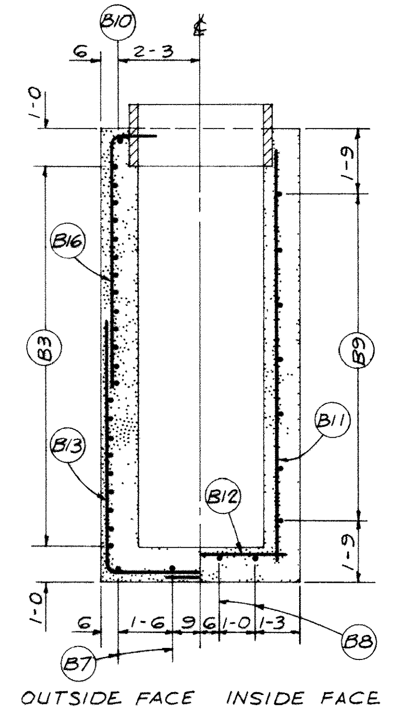
DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 22.dwg
DATE CHECKED: 8/4/2021

PRINCIPAL SPILLWAY INLET PLAN AND SECTIONS

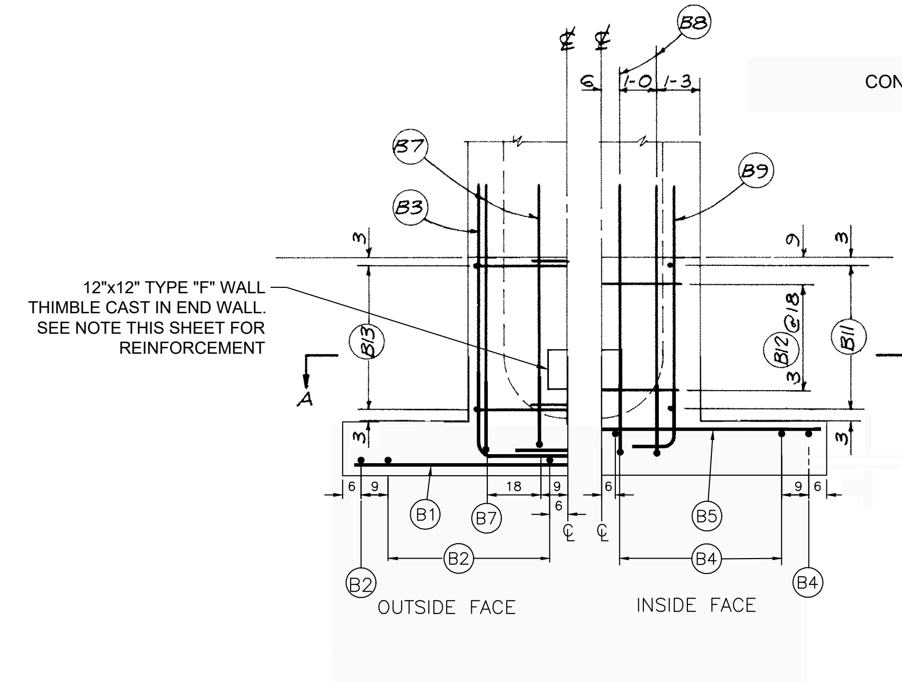
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

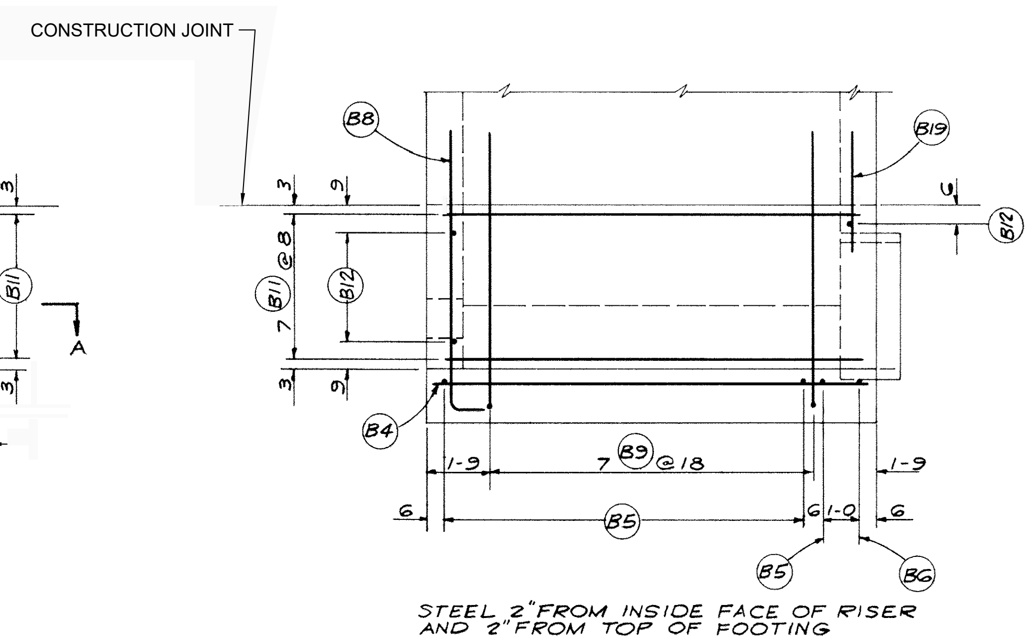
DRAWING NO. TX–EN–0754
SHEET NO. 22
OF 83



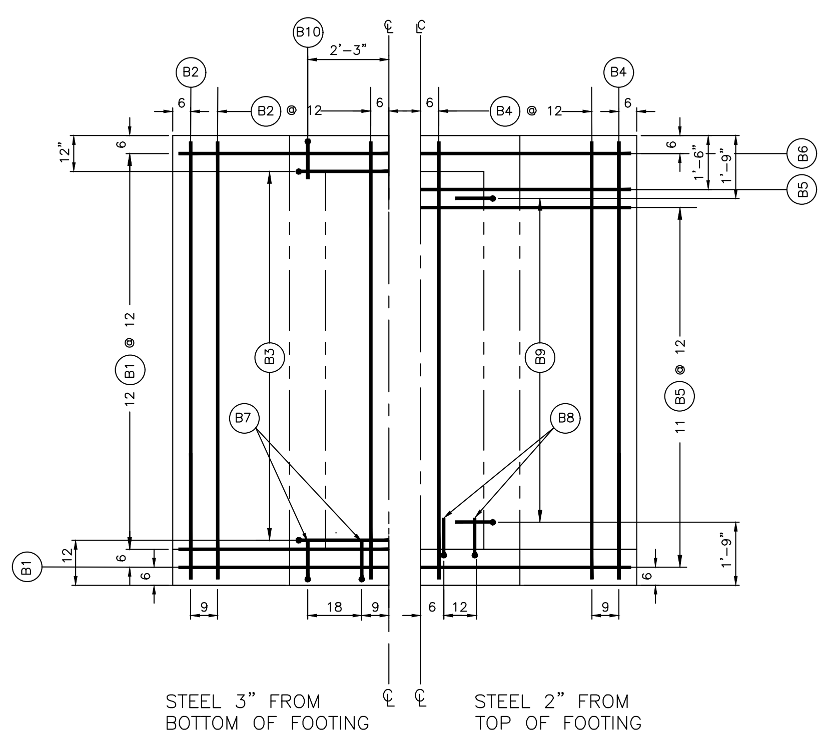
SECTION A-A



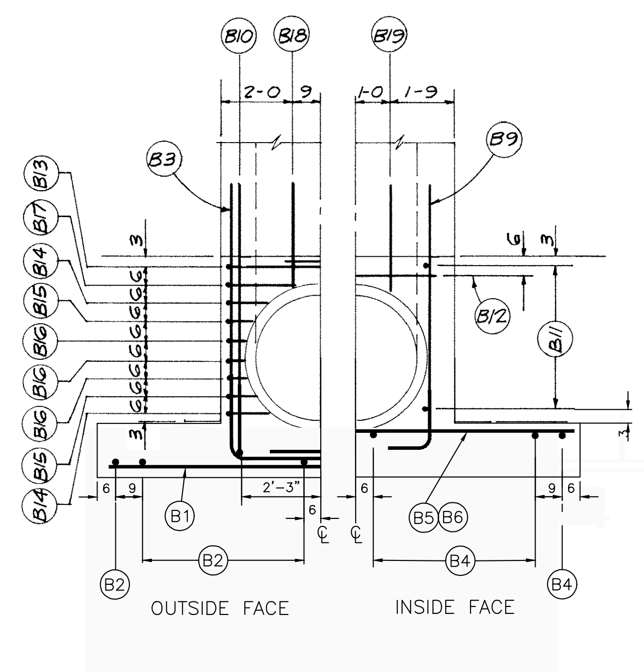
UPSTREAM ELEVATION



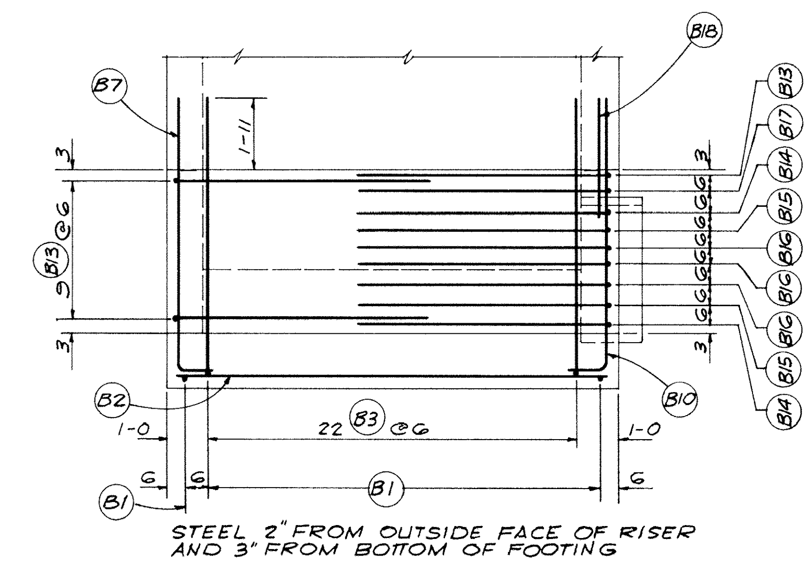
SIDEWALL ELEVATION



FOOTING PLAN



DOWNSTREAM ELEVATION



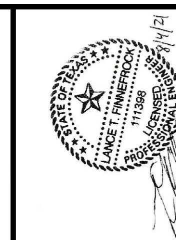
SIDEWALL ELEVATION

0 1 2 4
SCALE IN FEET

NOTE: BARS B7, B8, B12 AND B13 PASSING THROUGH WALL THIMBLE / OPENING SHALL BE FIELD CUT OR MOVED TO CLEAR THE THIMBLE BY 2 INCHES. SEE SHEET 26 FOR CRACK CONTROL REINFORCEMENT AROUND BLOCKOUTS, OPENINGS, AND THIMBLES.

STANDARD BAFFLE RISER	
STANDARD DWG. NO. ES-3242-1515R	
DATE 9-79	SHEET 2 OF 4
ADAPTED FROM	
STANDARD COVER RISER	
DESIGN CONSTANTS f'c = 4,000 psi n = 8	fc = 1,600 psi fs = 20,000
STANDARD DWG. NO. ES-3042-2015R	
DATE 4-65	SHEET 2 OF 4

REVISIONS		
DATE	APPROVED	TITLE



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PRINCIPAL SPILLWAY INLET REINFORCEMENT (1 OF 3)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
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DRAWING NO. TX–EN–0754
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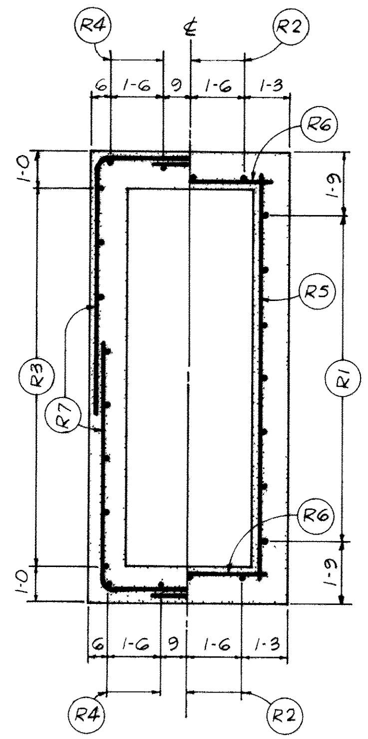
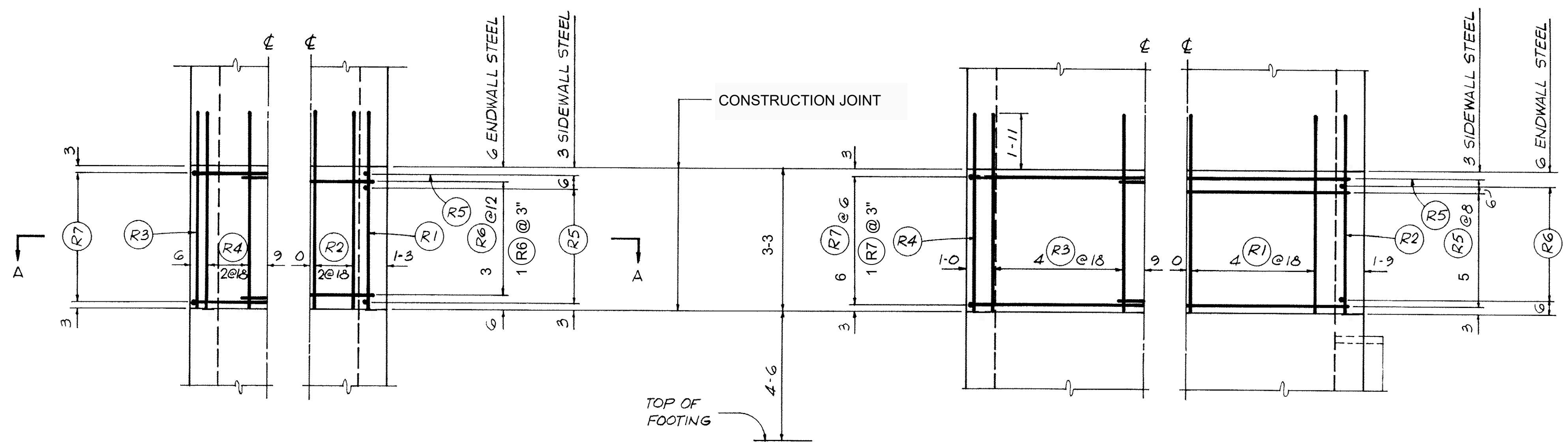


SECTION A-A

OTHER SECTIONS SIMILAR



ENDWALL ELEVATION

SIDEWALL ELEVATION

0 1 2 4
SCALE IN FEET

STANDARD BAFFLE RISER	
STANDARD DWG. NO. ES-3242-1515R	
DATE 9-79	SHEET 3 OF 4
ADAPTED FROM	
STANDARD COVER RISER	
DESIGN CONSTANTS f 'c = 4,000 psi fc = 1,600 psi n = 8 fs = 20,000	
STANDARD DWG. NO. ES-3042-2015R	
DATE 8-66	SHEET 3 OF 4

REVISIONS		
DATE	APPROVED	TITLE

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DATE CHECKED: 8/4/2021

PRINCIPAL SPILLWAY INLET REINFORCEMENT (2 OF 3)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754

SHEET NO. 24 OF 83

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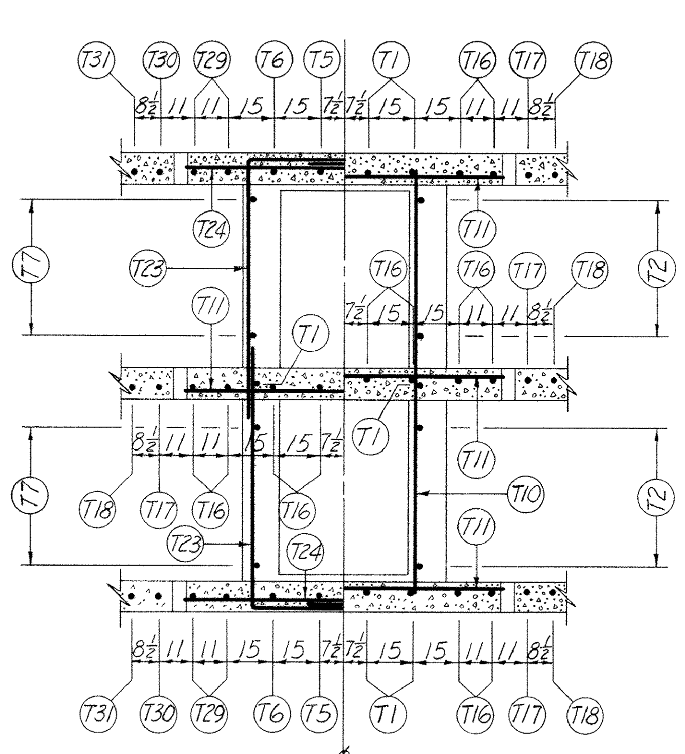
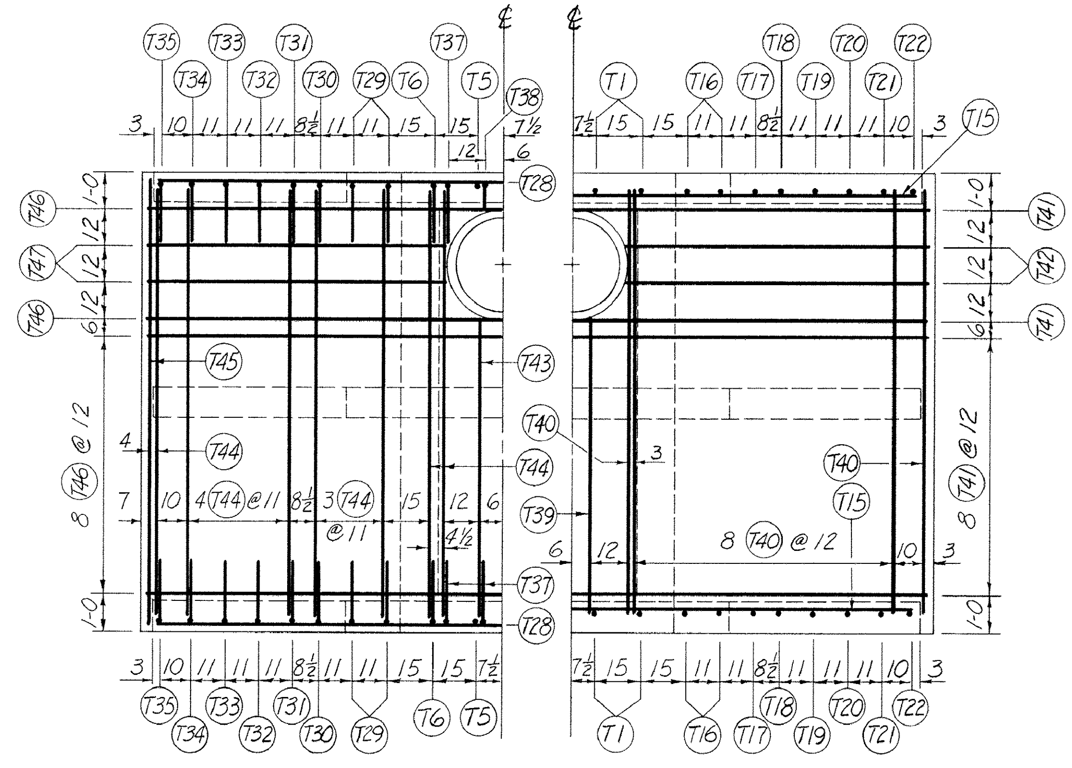


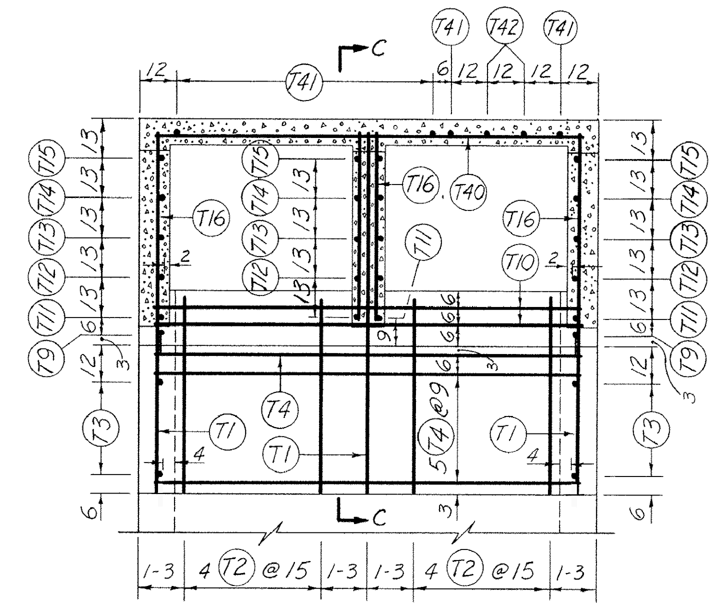
OUTSIDE FACE ℄ INSIDE FACE

SECTION A-A



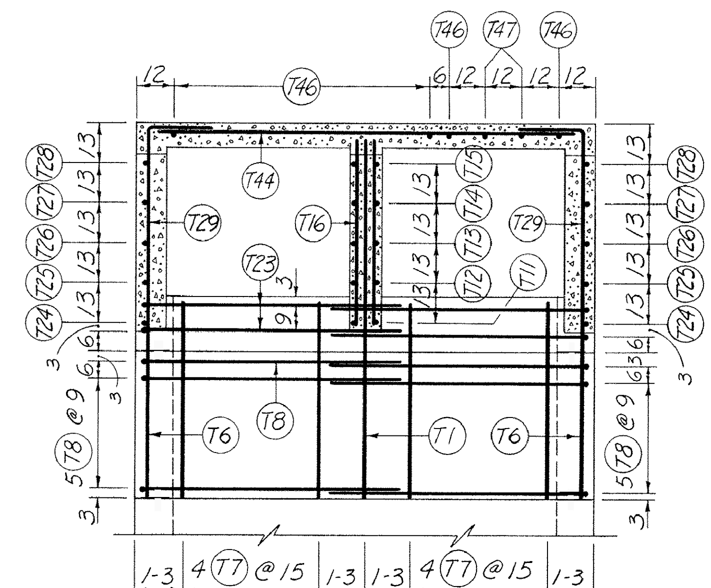
STEEL 2" FROM TOP   STEEL 2" FROM BOTTOM

COVER SLAB PLAN



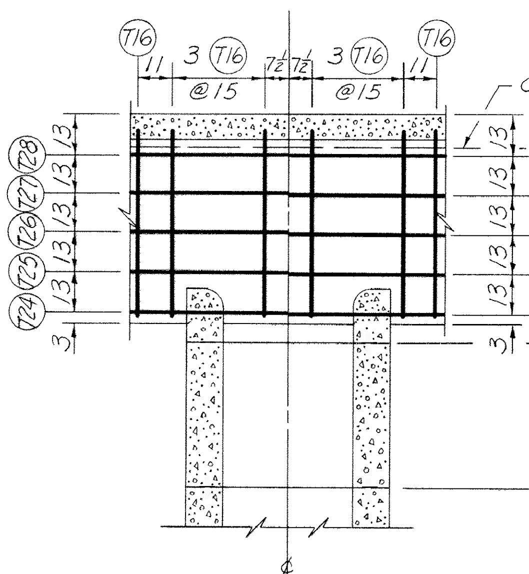
STEEL 2" FROM INSIDE FACE
(SEE NOTE 4)

SECTION B-B



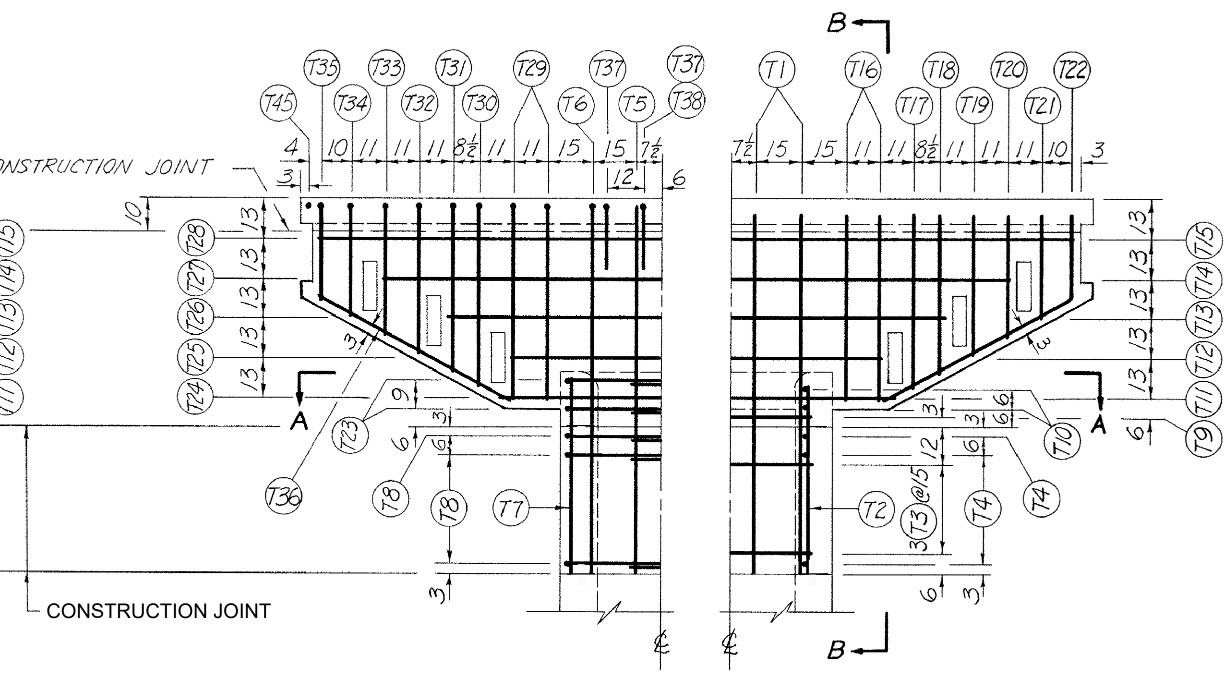
STEEL 2" FROM OUTSIDE FACE

SECTION B-B



STEEL IN UPSTREAM FACE   STEEL IN DOWNSTREAM FACE
(SEE NOTE 2)

SECTION C-C



STEEL 2" FROM OUTSIDE FACE   STEEL 2" FROM INSIDE FACE

ENDWALL ELEVATION

0 1 2 3 4
Scale in Feet

NOTES:

1. ALL DIMENSIONS IN INCHES.
2. STEEL NOT SHOWN IS IDENTICAL TO INSIDE ENDWALL STEEL.
3. THE 2", 3" AND 4" DISTANCES FROM SPECIFIED CONCRETE SURFACES ARE CLEAR DISTANCES.
4. BARS T11, T3, AND T9 IN ENDWALLS BELOW CREST ARE 4" FROM INSIDE FACE.

STANDARD BAFFLE RISER	
DESIGN CONSTANTS f 'c = 4,000 psi fc = 1,600 psi n = 8 fs = 20,000	
STANDARD DWG. NO.	ES-3242-21515R
DATE 9-79	SHEET 4 OF 4

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DATE CHECKED: 8/4/2021

PRINCIPAL SPILLWAY INLET REINFORCEMENT (3 OF 3)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
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Natural Resources Conservation Service

DRAWING NO. TX-EN-0754
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Reinforcing Steel Schedule

Mark	Size (Bar #)	Quantity	Type	B (ft) - (in)	C (ft) - (in)	Length (ft) - (in)	Total Length (ft) - (in)
B1	6	13	1	-	-	12 - 0	156 - 0
B2	6	14	1	-	-	12 - 0	168 - 0
B3	7	44	21	4 - 0	7 - 8	11 - 8	513 - 4
B4	6	14	1	-	-	12 - 0	168 - 0
B5	6	12	1	-	-	12 - 0	144 - 0
B6	6	2	1	-	-	5 - 4	10 - 8
B7	6	4	21	1 - 0	7 - 8	8 - 8	34 - 8
B8	6	4	21	1 - 0	7 - 8	8 - 8	34 - 8
B9	6	14	21	1 - 0	7 - 8	8 - 8	121 - 4
B10	6	2	21	1 - 0	7 - 8	8 - 8	17 - 4
B11	6	14	1	-	-	11 - 2	156 - 4
B12	6	4	1	-	-	4 - 2	16 - 8
B13	6	20	21	3 - 7	7 - 1	10 - 8	213 - 4
B14	6	4	21	1 - 1	7 - 1	8 - 2	32 - 8
B15	6	4	21	0 - 9	7 - 1	7 - 10	31 - 4
B16	6	6	21	0 - 6	7 - 1	7 - 7	45 - 6
B17	6	2	21	2 - 1	7 - 1	9 - 2	18 - 4
B18	6	2	1	-	-	2 - 9	5 - 6
B19	6	2	1	-	-	2 - 10	5 - 8
R1	6	14	1	-	-	5 - 2	72 - 4
R2	6	6	1	-	-	5 - 2	31 - 0
R3	6	16	1	-	-	5 - 2	82 - 8
R4	6	8	1	-	-	5 - 2	41 - 4
R5	6	12	1	-	-	11 - 2	134 - 0
R6	6	8	1	-	-	4 - 2	33 - 4
R7	6	28	21	3 - 7	7 - 1	10 - 8	298 - 8
T1	5	12	1	-	-	9 - 9	117 - 0
T2	5	16	1	-	-	5 - 2	82 - 8
T3	5	6	1	-	-	4 - 4	26 - 0
T4	5	12	1	-	-	11 - 6	138 - 0
T5	5	4	1	-	-	9 - 9	39 - 0
T6	5	4	21	1 - 9	10 - 0	11 - 9	47 - 0
T7	5	16	1	-	-	5 - 3	84 - 0
T8	5	24	21	3 - 5	6 - 11	10 - 4	248 - 0
T9	5	4	1	-	-	4 - 4	17 - 4
T10	5	4	1	-	-	11 - 6	46 - 0
T11	5	4	1	-	-	8 - 8	34 - 8
T12	5	4	1	-	-	8 - 2	32 - 8
T13	5	4	1	-	-	11 - 8	46 - 8
T14	5	4	1	-	-	15 - 2	60 - 8
T15	5	4	1	-	-	18 - 8	74 - 8
T16	5	24	1	-	-	5 - 1	122 - 0
T17	5	8	1	-	-	4 - 8	37 - 4
T18	5	8	1	-	-	4 - 3	34 - 0
T19	5	8	1	-	-	3 - 9	30 - 0
T20	5	8	1	-	-	3 - 3	26 - 0
T21	5	8	1	-	-	2 - 10	22 - 8
T22	5	8	23	2 - 4	5 - 10	8 - 2	65 - 4
T23	5	8	21	3 - 5	6 - 11	10 - 4	82 - 8
T24	5	2	1	-	-	8 - 8	17 - 4
T25	5	2	1	-	-	8 - 2	16 - 4
T26	5	2	1	-	-	11 - 8	23 - 4
T27	5	2	1	-	-	15 - 2	30 - 4
T28	5	2	1	-	-	18 - 8	37 - 4
T29	5	8	21	1 - 9	5 - 4	7 - 1	56 - 8
T30	5	4	21	1 - 9	4 - 11	6 - 8	26 - 8
T31	5	4	21	1 - 9	4 - 6	6 - 3	25 - 0
T32	5	4	21	1 - 9	4 - 0	5 - 9	23 - 0
T33	5	4	21	1 - 9	3 - 7	5 - 4	21 - 4
T34	5	4	21	1 - 9	3 - 1	4 - 10	19 - 4
T35	5	4	21	1 - 9	2 - 8	4 - 5	17 - 8
T36	5	4	1	-	-	5 - 11	23 - 8
T37	5	6	21	1 - 9	1 - 9	3 - 6	21 - 0
T38	5	2	21	0 - 10	1 - 9	2 - 7	5 - 2
T39	4	2	1	-	-	8 - 1	16 - 2
T40	4	20	1	-	-	11 - 6	230 - 0
T41	4	10	1	-	-	19 - 4	193 - 4
T42	4	4	1	-	-	8 - 3	33 - 0
T43	5	2	1	-	-	8 - 2	16 - 4
T44	5	20	1	-	-	11 - 9	235 - 0
T45	5	2	1	-	-	12 - 2	24 - 4
T46	4	10	1	-	-	19 - 4	193 - 4
T47	4	4	1	-	-	8 - 2	32 - 8

PRINCIPAL SPILLWAY INLET STRUCTURE REINFORCEMENT SUMMARY			
Bar Size	Weight (lbs/l.f.)	Total Length (ft) - (in)	Total Weight (lbs.)
4	0.668	698 - 6	467
5	1.043	2,154 - 2	2247
6	1.502	2,073 - 4	3114
7	2.044	513 - 4	1049
TOTAL REINFORCING (lb.):			6877

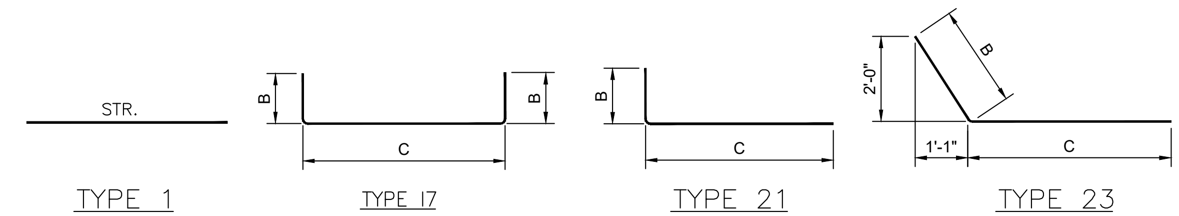


TABLE 1
PIN DIAMETER IN INCHES

BAR NO.	3	4	5	6	7	8	9	10	11
STANDARD BENDS	2 1/4	3	3 3/4	4 1/2	5 1/4	6	9 1/2	10 3/4	12
STIRRUP AND TIE BENDS	1 1/2	2	2 1/2	4 1/2	5 1/4	6	_	_	_

NOTE:

1. REBAR SCHEDULES AND LAYOUTS ARE FOR INFORMATION AND MAY BE USED AS A GUIDE. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING FULL REBAR LAYOUTS AND SCHEDULES FOR REVIEW AND APPROVAL.

TABLE 2
REINFORCEMENT REQUIREMENTS

BAR SIZE #	MINIMUM CLEAR BAR SPACING (INCHES)	DEVELOPMENT LENGTH, L_d		CLASS B SPLICE LENGTH	
		OTHER BARS (INCHES)	TOP BAR (INCHES)	OTHER BARS (INCHES)	TOP BAR (INCHES)
3	3	12	12	16	16
4	3	12	15	16	20
5	4	15	19	19	24
6	5	18	23	23	29
7	5	25	33	33	43
8	6	29	37	37	49
9	7	36	46	46	60
10	8	44	57	57	74
11	9	53	68	68	89

ABBREVIATIONS:

BO = BOTTOM OF
TO = TOP OF
BF = BOTTOM FACE
TF = TOP FACE
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
IF = INSIDE FACE
OF = OUTSIDE FACE
CJ = CONSTRUCTION JOINT
OCJ = OPTIONAL CONSTRUCTION JOINT
CTJ = CONTROL JOINT
HP = HIGH POINT
OC = ON CENTER
CRJ = CONTRACTION JOINT
EJ= EXPANSION JOINT
BR = BOTTOM ROW
TR = TOP ROW
NR = NEAR ROW
FR = FAR ROW
ER= EACH ROW
IR = INSIDE ROW
OR= OUTSIDE ROW
MR = MIDDLE ROW
SST = STAINLESS STEEL
TOC = TOP OF CONCRETE
BL = BOTTOM LAYER
TL = TOP LAYER
ML = MIDDLE LAYER
NS = NEAR SIDE
FS = FAR SIDE
ES = EACH SIDE
EW = EACH WAY
EC = EACH CORNER
L_d = DEVELOPMENT LENGTH
D_b = NOMINAL DIAMETER OF REINFORCING BAR

SPC = SPACE OR SPACES
EQ SPC = EQUALLY SPACED, EQUAL SPACES
UV = UNIFORMLY VARYING LENGTHS OF BARS BETWEEN LENGTHS SHOWN
CLR = CLEAR
CTR = CENTER OR CENTERS
WS = PVC WATERSTOP
CL = CENTERLINE

SYMBOLS:

SPLICES SHOWN THUS ═══ INDICATE A LAPPED SPLICE, NOT A BEND IN THE BAR.

DIMENSIONS:

DIMENSIONS ARE TO THE CENTERLINE OF THE BARS UNLESS OTHERWISE SHOWN.

COVER:

UNLESS INDICATED ON THE DRAWINGS, PLACE THE REINFORCEMENT SO THAT THE CLEAR DISTANCE BETWEEN FACE OF CONCRETE AND NEAREST REINFORCEMENT IS 2". PROVIDE 3" CLEAR DISTANCE FROM FACE OF CONCRETE FOR ALL BARS WHEN THE CONCRETE IS PLACED AGAINST EARTH OR ROCK. CLEAR DISTANCE IS THE DESIGN DIMENSION LINE. REINFORCEMENT PARALLELING CONSTRUCTION JOINTS SHALL HAVE A MINIMUM OF 2" CLEAR COVER.

BENT BARS:

UNLESS OTHER RADIUS BENDS ARE INDICATED ON THE DRAWINGS, ALL REINFORCEMENT REQUIRING BENDING SHALL BE BENT AROUND A PIN HAVING A DIAMETER AS INDICATED IN TABLE 1.

ACCESSORIES:

BAR SUPPORTS, SPACERS, AND OTHER ACCESSORIES ARE NOT SHOWN ON THE DRAWINGS. THE RECOMMENDATIONS OF THE ACI DETAILING MANUAL–CURRENT EDITION, OR OTHER APPROVED SUPPORTING SYSTEM MAY BE USED.

REFERENCE CODE:

UNLESS OTHERWISE SHOWN FOLLOW THE RECOMMENDATIONS ESTABLISHED BY THE AMERICAN CONCRETE INSTITUTE'S DETAILING MANUAL (ACI SP–66).

SPLICES:

THE MINIMUM LENGTH OF LAP FOR SPLICING PARALLEL BARS SHALL BE GIVEN IN TABLE 2. WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTHS OF LAP SHALL BE GOVERNED BY THE SMALLER DIAMETER BAR. SPLICES ARE TO BE MADE SO THAT THE REQUIRED CLEAR DISTANCES TO FACE OF CONCRETE WILL BE MAINTAINED.

TABLE 2 NOTES:

1. SPLICE LENGTHS AND DEVELOPMENT LENGTHS INDICATED ARE MINIMUM LENGTHS REQUIRED BASED ON THE PROVISIONS OF ACI 318, SECTIONS 12.2.3 AND 12.15.1. WHEN SPLICE LENGTHS BASED ON THE REINFORCEMENT SCHEDULES ARE LONGER THAN THOSE INDICATED IN TABLE 2, THE REINFORCEMENT SCHEDULE SHALL GOVERN. NO FIELD CUTTING OF REINFORCEMENT WILL BE ALLOWED UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS OR APPROVED BY THE CONTRACTING OFFICER.

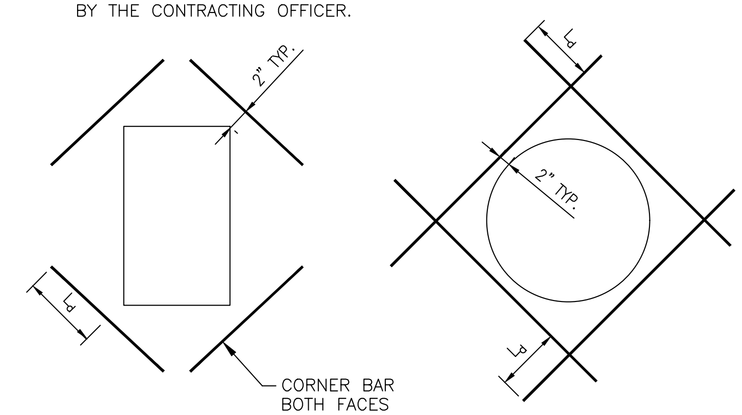
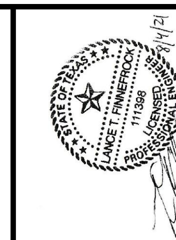


TABLE 3

TABLE FOR REINFORCEMENT AROUND OPENINGS	
MEMBER THICKNESS	CORNER BARS
LESS THAN 10"	1–#4 CTR.
10" THRU 1'–6"	2–#4 (1EF)
1'–7" THRU 3'–0"	2–#6 (1EF)
OVER 3'–0"	2–#8 (1EF)



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PRINCIPAL SPILLWAY INLET REINFORCEMENT SCHEDULE
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO.
TX–EN–0754

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DATE	APPROVED	TITLE

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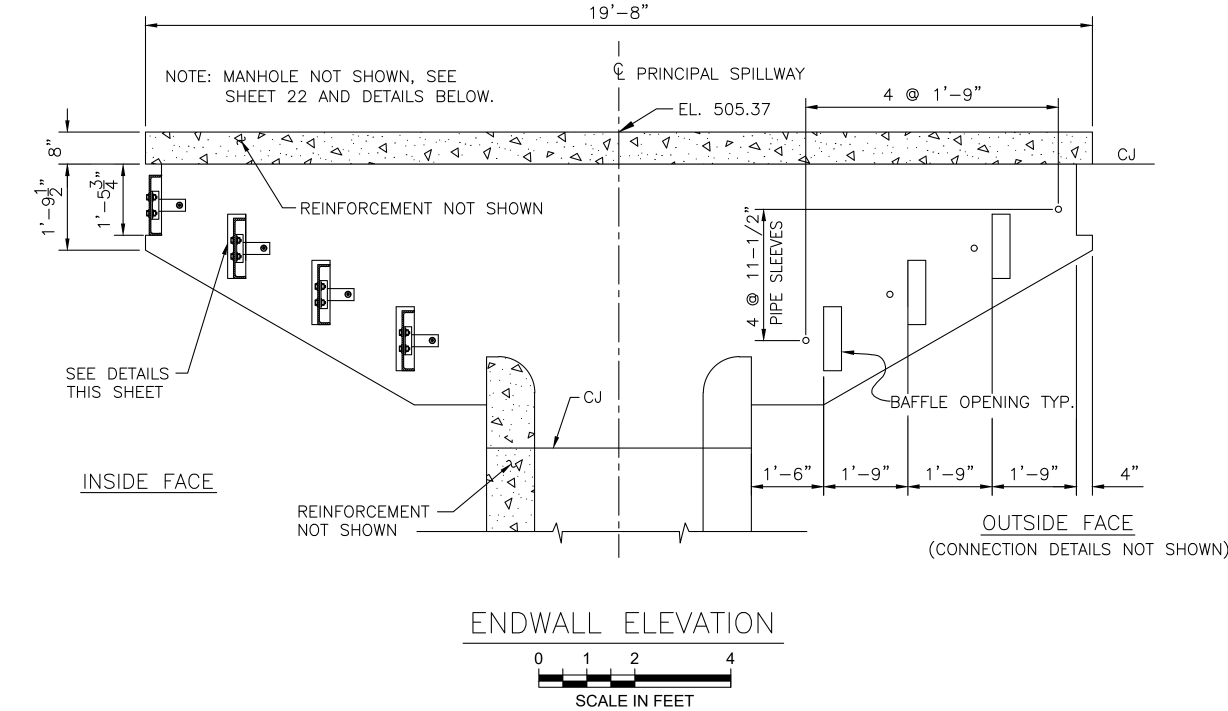
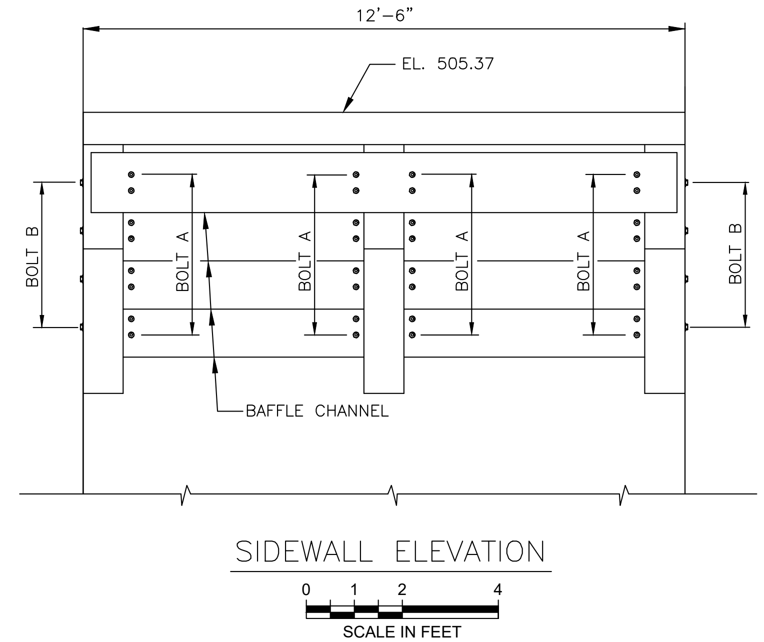


ENDWALL ELEVATION

SCALE IN FEET



SIDEWALL ELEVATION

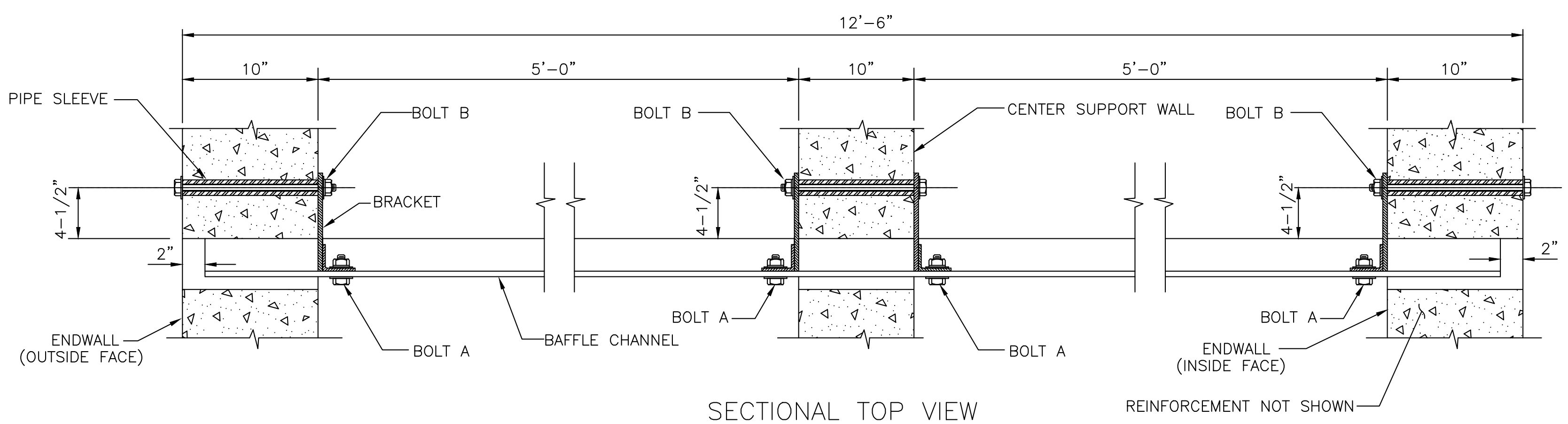
SCALE IN FEET

SCHEDULE OF QUANTITIES		
ITEM	SIZE	QUANTITY
CHANNEL	C 15 x 33.9	8
BRACKET	SEE DETAIL	32
BOLT A [1]	1/2 x 2 1/2	64
BOLT B [1]	5/8 x 12	24
PIPE SLEEVE	3/4 x 10	24

[1] BOLT WITH TWO FLAT WASHERS, ONE LOCK WASHER AND NUT.

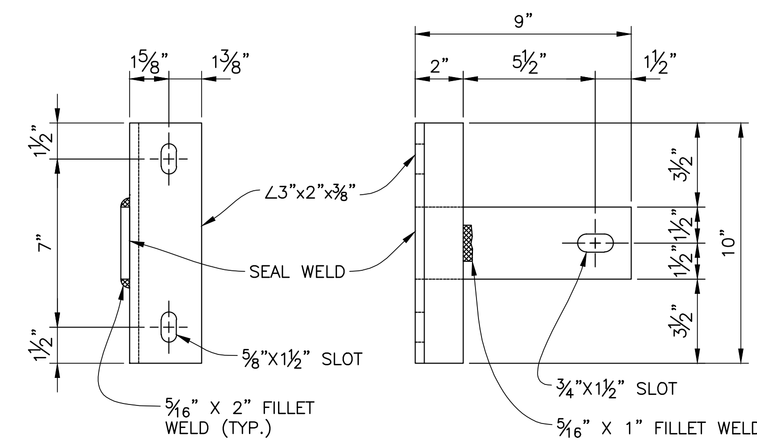
NOTES:

1. ALL PARTS OF TRASHRACK SHALL BE A36 STEEL AND GALVANIZED AFTER FABRICATION. SEE MATERIAL SPECIFICATIONS 581 AND 582.
2. MANHOLE COVER SHALL BE NEENAH FOUNDRY COMPANY R-6078 ROUND SERIES WITH TYPE E LOCKING DEVICE (WITH STAINLESS STEEL CAP SCREWS) OR EQUIVALENT AS APPROVED BY THE CONTRACTING OFFICER OR THEIR DESIGNATED REPRESENTATIVE. IF AN APPROVED EQUIVALENT IS USED, IT SHALL HAVE A SIMILAR LOCKING DEVICE. SEE CONSTRUCTION SPECIFICATION 81.



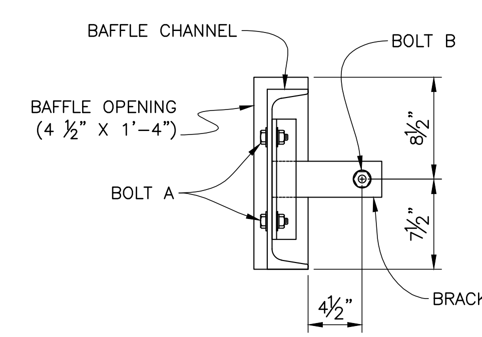
SECTIONAL TOP VIEW

NOT TO SCALE

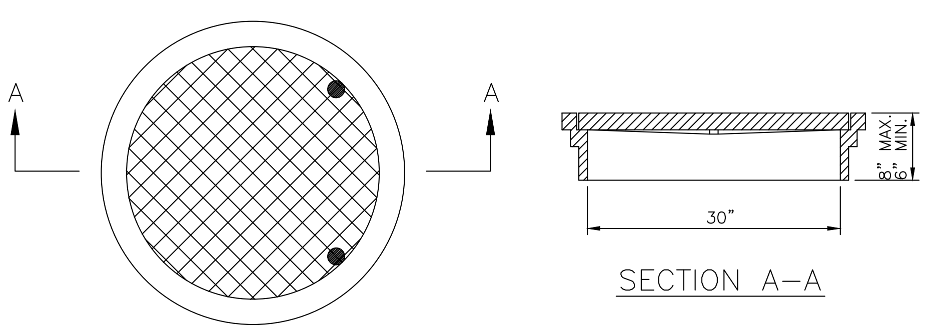


BRACKET

NOT TO SCALE



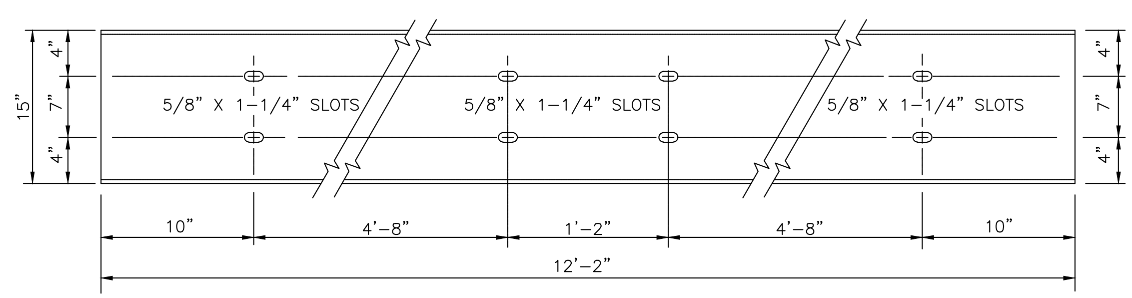
SIDE VIEW



SECTION A-A

MANHOLE COVER DETAILS (SEE NOTE 2)

NOT TO SCALE



BAFFLE CHANNEL

NOT TO SCALE

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DATE CHECKED: 8/4/2021

PRINCIPAL SPILLWAY INLET – TRASHRACK DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

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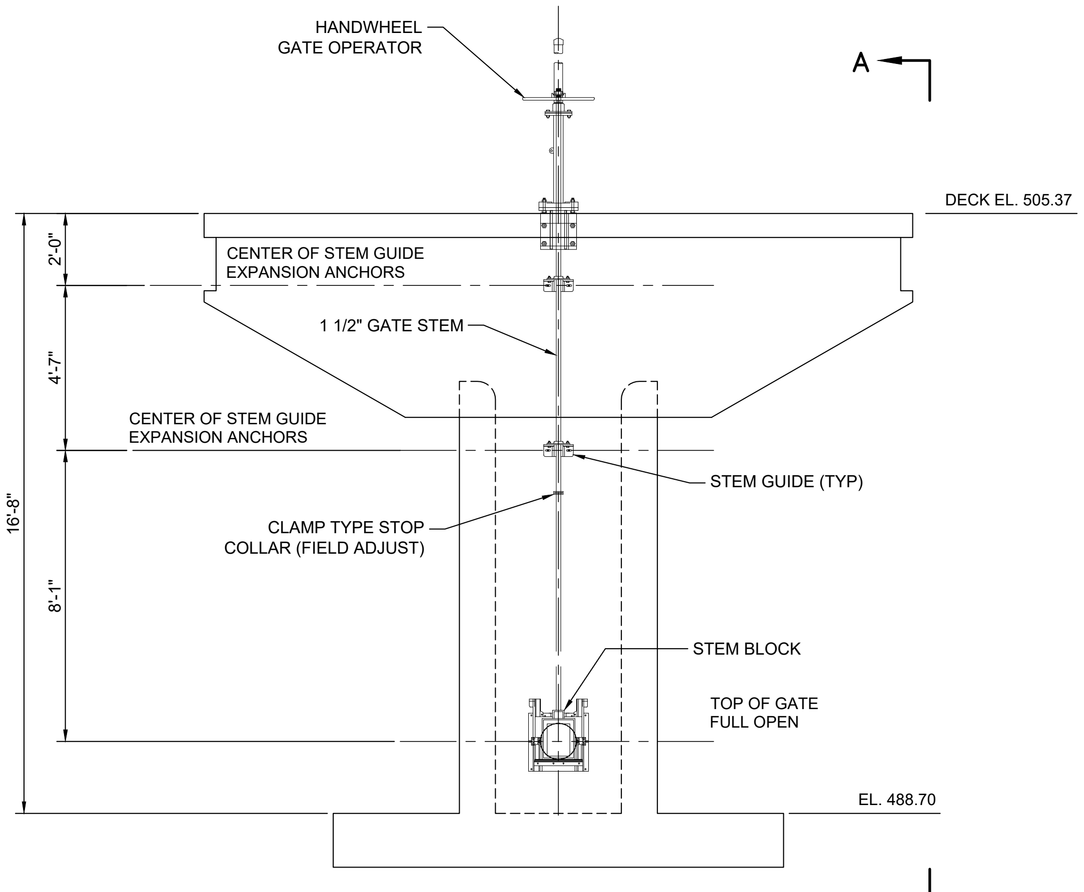
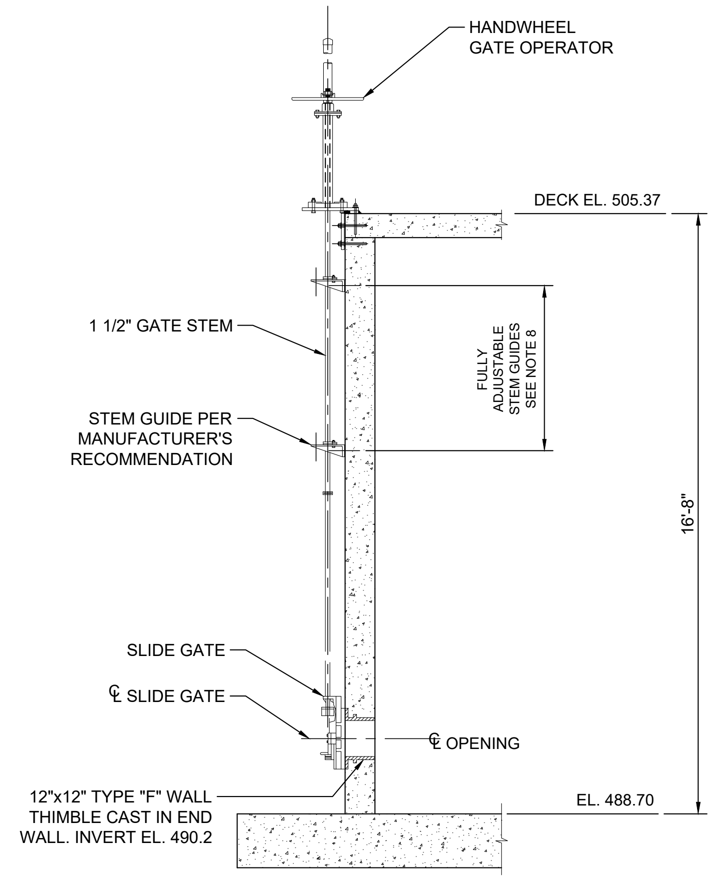


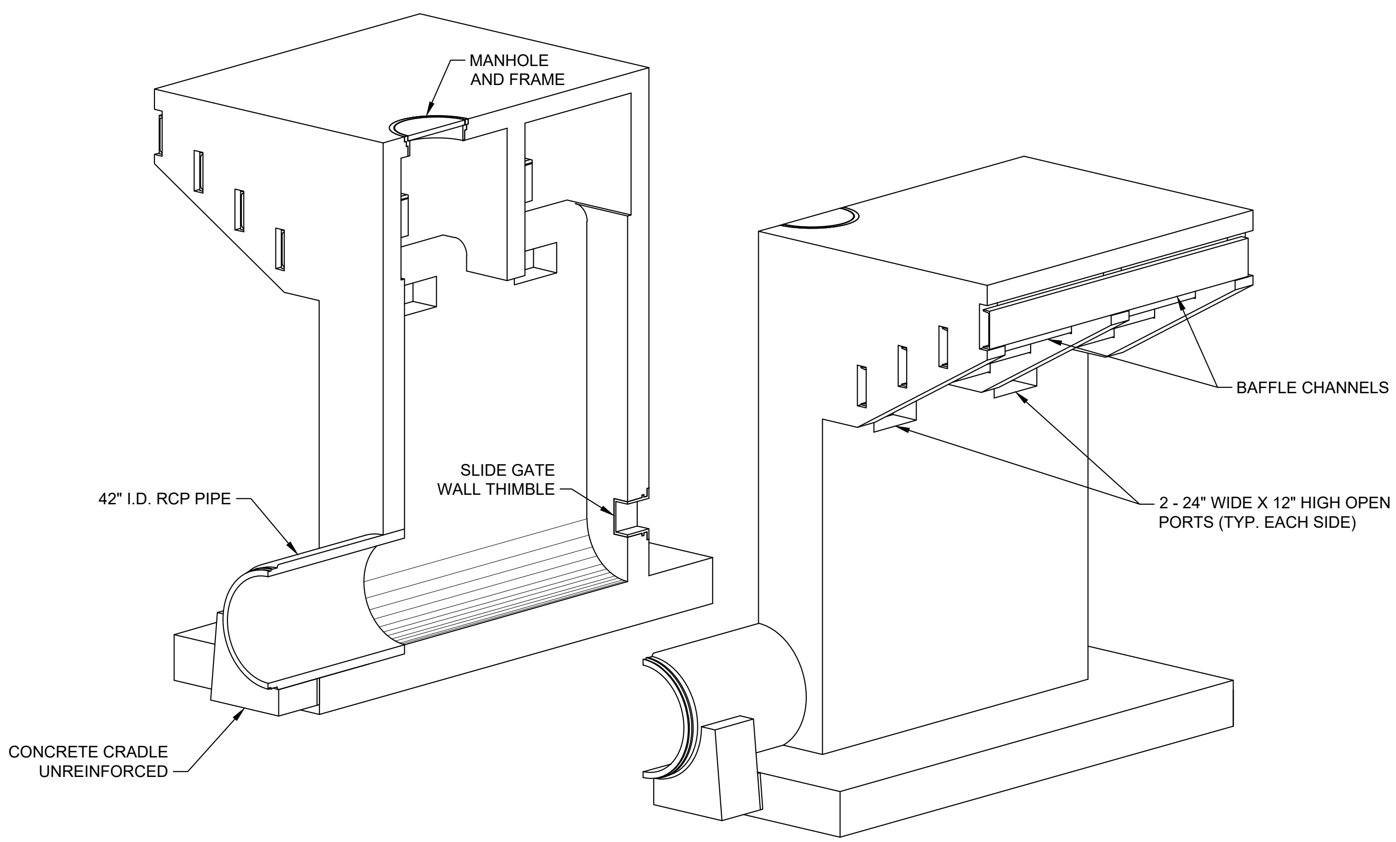
DETAILS OF SLIDE GATE
NOT TO SCALE



SECTION A-A
NOT TO SCALE

NOTES:

1. REINFORCEMENT NOT SHOWN. SEE SHEETS 20 TO 23 FOR DETAILS.
2. THE SLIDE GATE SHALL BE CENTERED IN THE UPSTREAM ENDWALL OF THE PRINCIPAL SPILLWAY INLET. WALL BRACKET AND STEM GUIDES SHALL HAVE SUFFICIENT ADJUSTMENT TO ENSURE VERTICAL MOUNTING FOR THE GATE WALL FITTING.
3. 12" SQUARE FABRICATED CAST IRON SLIDE GATE, SELF CONTAINED, CLASS 30-20, TYPE MLS-2, FLANGE BACK, WITH THIMBLE AND RUBBER GASKET. THIMBLE - TYPE F, CAST IRON. FOR ADDITIONAL SLIDE GATE DETAILS SEE CONSTRUCTION SPECIFICATION 71.
4. 1-1/2" DIA. STAINLESS STEEL PIPE NON-RISING STEM EXTENSION AND BRACKETS (TORQUE TUBE).
5. 10" DIAMETER HANDWHEEL, TYPE 1.
6. STAINLESS STEEL BOLTS AND NUTS.
7. GATE TO BE INSTALLED ACCORDING TO MANUFACTURERS INSTALLATION INSTRUCTIONS.
8. STEM GUIDE SPACING SHALL BE ACCORDING TO MANUFACTURERS RECOMMENDATIONS OR AT 6 FOOT MAX. SPACING, WHICHEVER CONTROLS. CONTRACTOR SHALL COORDINATE BOLT LOCATIONS TO MAINTAIN 2 INCH MINIMUM CLEARANCE FROM REINFORCEMENT AND 6 INCH MINIMUM DISTANCE FROM CONSTRUCTION JOINTS.



PRINCIPAL SPILLWAY INLET SECTION ISOMETRIC VIEW
NOT TO SCALE

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: KNF
DRAWN BY: CAD
CHECKED BY: SS
FILE NAME: Plum 21 – Sht 28.dwg
DATE CHECKED: 8/4/2021

PRINCIPAL SPILLWAY INLET – SLIDE GATE DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 28
OF 83

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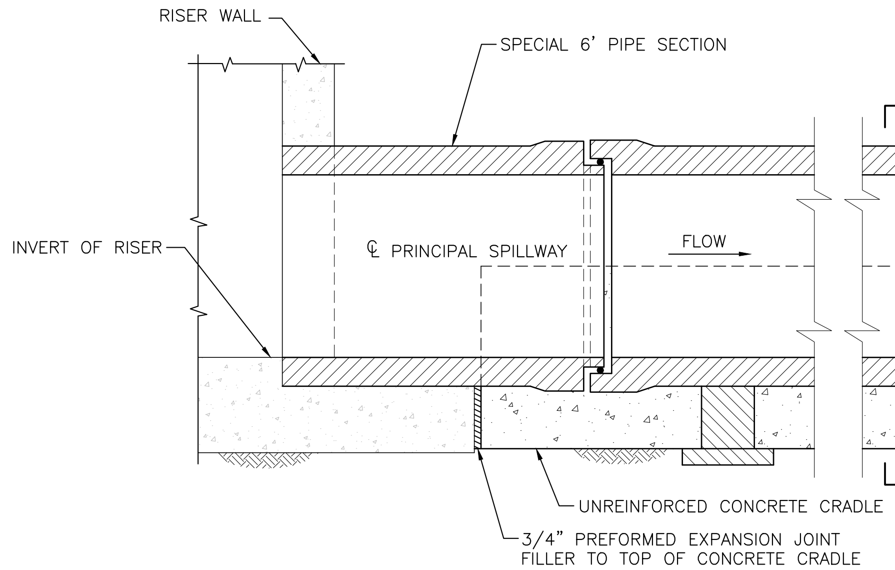
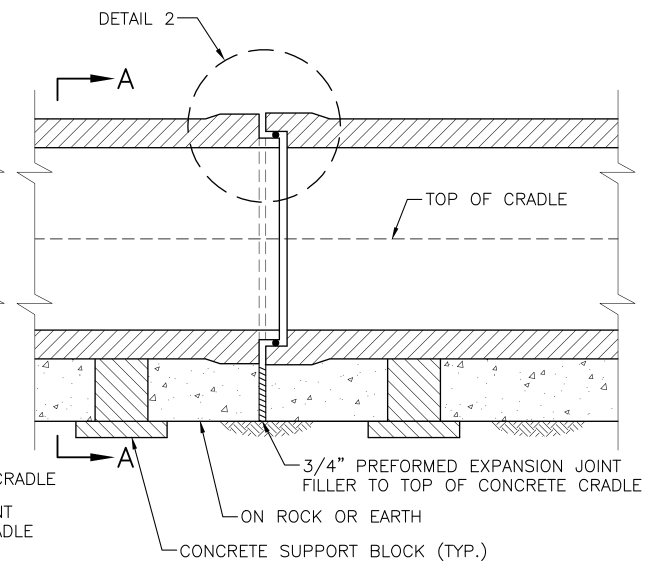


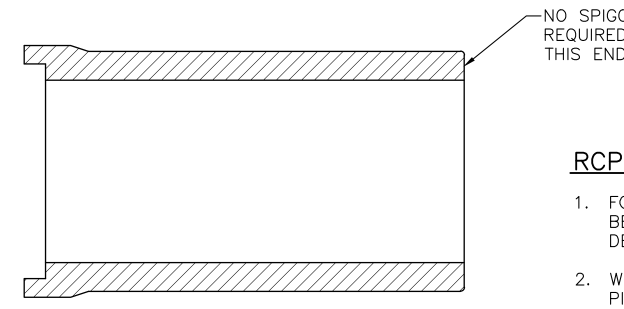
DETAIL OF WALL FITTING

NOT TO SCALE



DETAIL OF PIPE JOINT

NOT TO SCALE

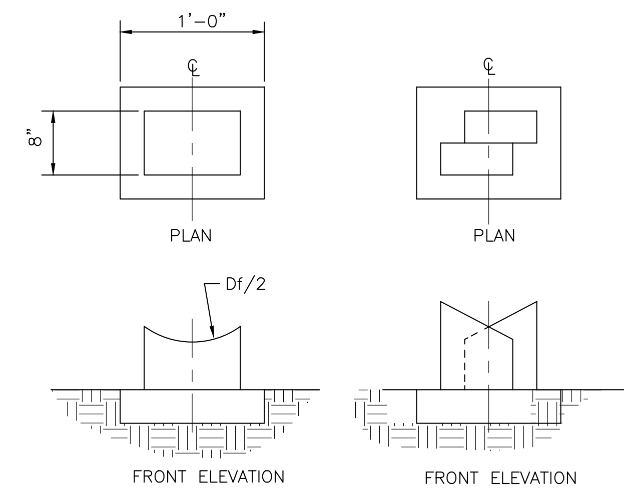


TERMINAL PIPE SECTION (ONE REQUIRED)

NOT TO SCALE

RCP JOINT NOTES:

1. FOR PIPE LENGTH OTHER THAN SHOWN, JOINT REQUIREMENTS WILL BE DETERMINED BY THE CONTRACTING OFFICER OR THEIR DESIGNATED REPRESENTATIVE.
2. WHERE PIPES OF DIFFERENT LENGTH ARE CONNECTED, ADJOINING PIPES SHALL MEET THE REQUIREMENTS OF THE LONGER PIPE.
3. PRIOR TO DELIVERY OF PIPE, THE PIPE JOINT DETAIL PROPOSED FOR USE SHALL BE SUBMITTED TO THE CONTRACTING OFFICER OR THEIR DESIGNATED REPRESENTATIVE FOR APPROVAL.

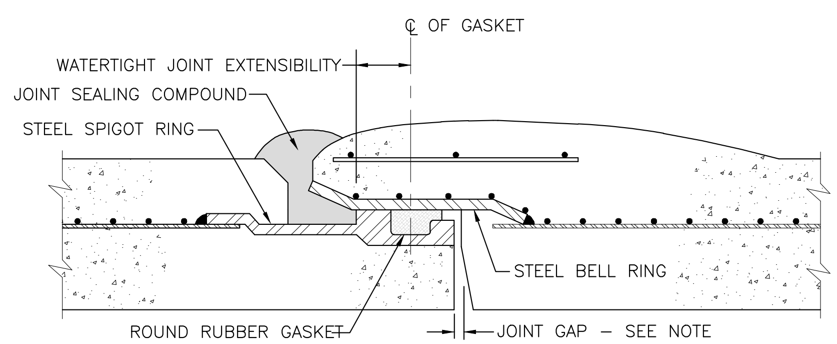


SUGGESTED SUPPORT BLOCKS AND WEDGES

NOT TO SCALE

SUPPORT BLOCK NOTES

1. SUFFICIENT BLOCKS OR WEDGES SHALL BE PROVIDED TO SUPPORT THE PIPE TO THE REQUIRED LINE AND GRADE. THE CONTRACTOR SHALL DETERMINE THE NUMBER AND SIZE OF BLOCKS OR WEDGES REQUIRED.
2. A MINIMUM OF TWO SUPPORTS SHALL BE REQUIRED FOR EACH SECTION OF PIPE.
3. AT LEAST 6" SHALL BE MAINTAINED BETWEEN THE SIDE OF THE FINISHED CRADLE SURFACE AND THE COMPLETED SUPPORT BLOCK OR WEDGE.



DETAIL 2

NOT TO SCALE

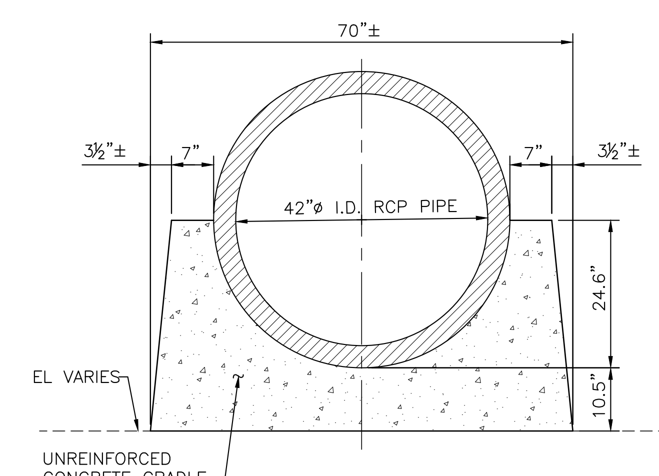
NOTE:
JOINT LENGTH EQUALS WATERTIGHT JOINT EXTENSIBILITY PLUS JOINT GAP. THE PIPE SHALL BE DRAWN TOGETHER SO THAT THE MAXIMUM JOINT GAP DOES NOT EXCEED ⅜" FOR PIPE LAID ON A STRAIGHT LINE.

RCP STRENGTH REQUIREMENTS

I.D. OF PIPE	INTERNAL LOAD: HYDROSTATIC PRESSURE HEAD OF WATER IN FEET	EXTERNAL LOAD: MINIMUM 3-EDGE BEARING STRENGTH IN POUNDS PER LINEAL FOOT OF PIPE (SEE AWWA C-301 FOR REFERENCE) OR EQUIVALENT LOAD TO PRODUCE 0.001 IN. CRACK ONE FOOT LONG
INCHES	FEET	LBS/FT
42	50	10,500

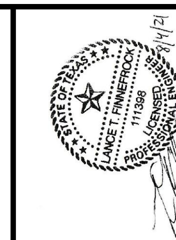
JOINT REQUIREMENTS

PIPE I.D.	LENGTH OF PIPE SECTION	MINIMUM JOINT LENGTH	MINIMUM JOINT LIMITING ANGLE	
INCH	FEET	INCHES	RADIANS	DEGREES
42	10	3 1/8	0.0157	0.90



SECTION A–A

NOT TO SCALE



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DRAWN BY:	CAD
CHECKED BY:	SS
FILE NAME:	Plum 21 – Sht 29.dwg
DATE CHECKED:	8/4/2021

PRINCIPAL SPILLWAY RCP SECTIONS AND DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN

CALDWELL COUNTY, TEXAS

United States Department of Agriculture

USDA

Natural Resources Conservation Service

DRAWING NO. TX–EN–0754

SHEET NO. 29

OF 83

REVISIONS

DATE	APPROVED	TITLE

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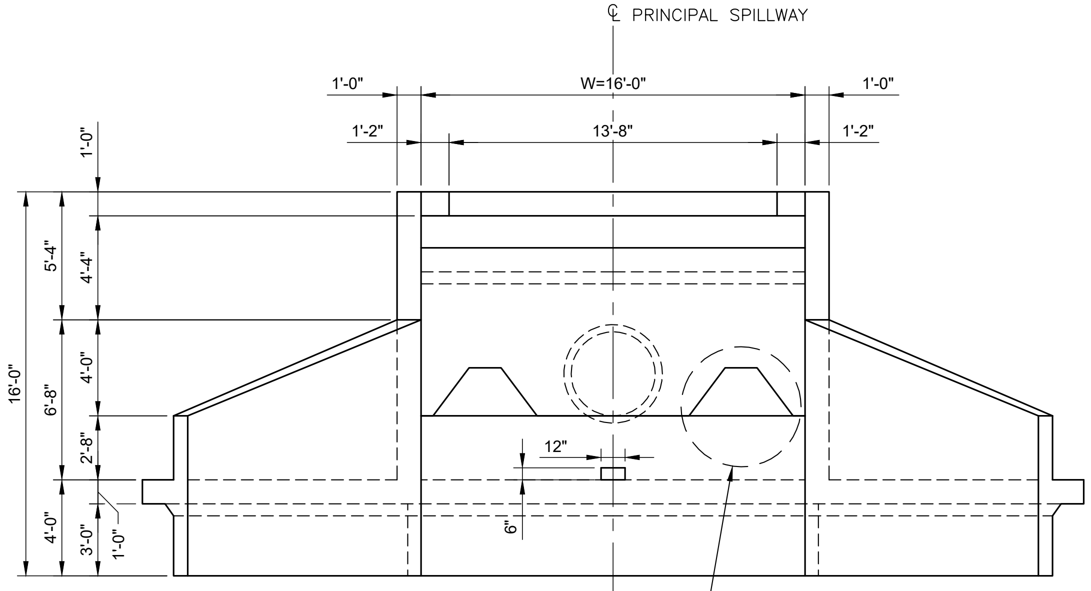
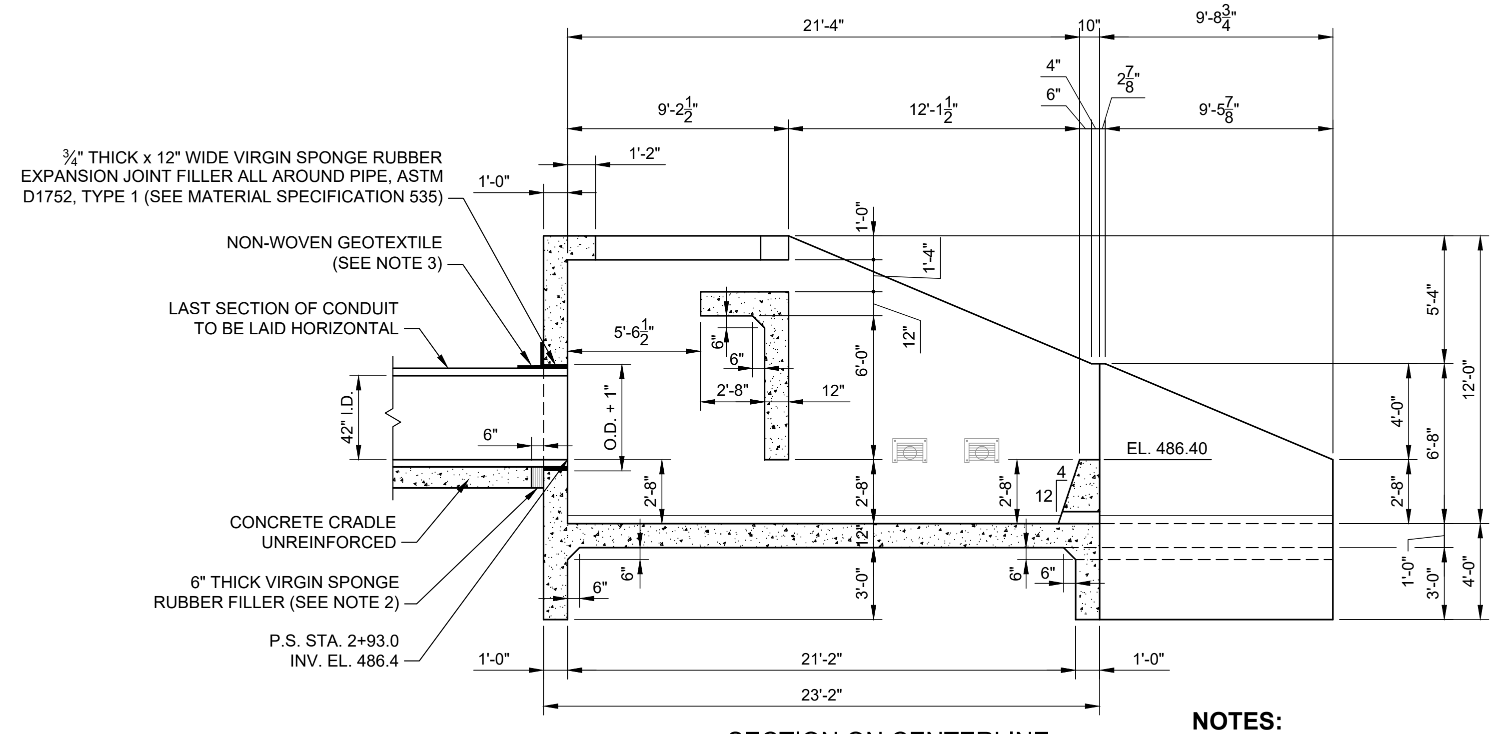


DOWNSTREAM ELEVATION

0 2 4 8
SCALE IN FEET

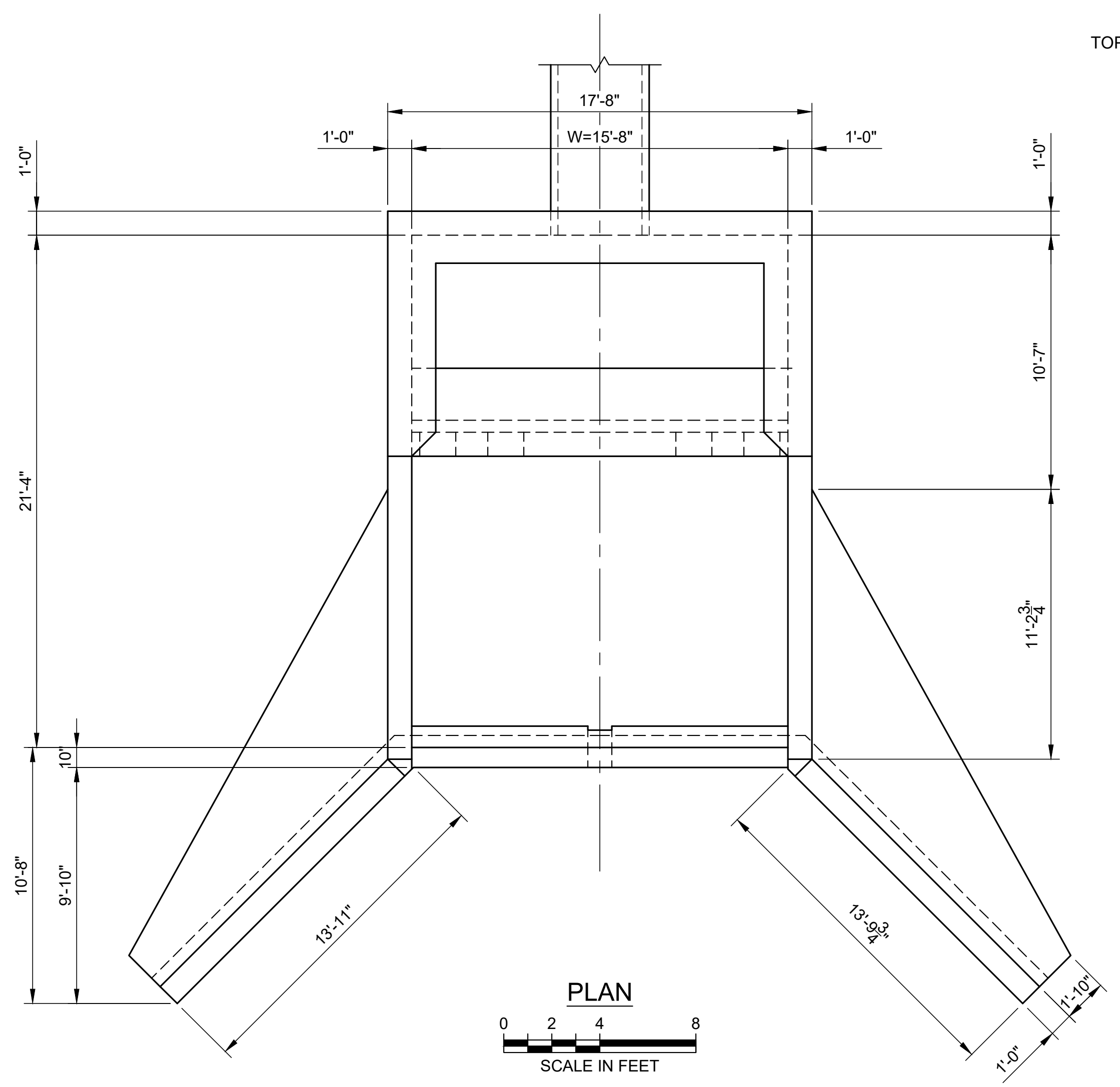


SECTION ON CENTERLINE

0 2 4 8
SCALE IN FEET

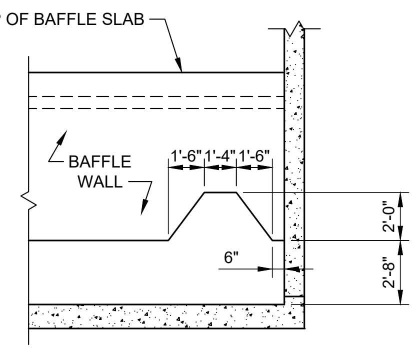
NOTES:

1. REINFORCEMENT NOT SHOWN (SEE SHEETS 31 THRU 34).
2. 6" THICK VIRGIN SPONGE RUBBER FILLER TO BE INSTALLED BETWEEN THE UPSTREAM FACE OF THE HEADWALL AND DOWNSTREAM FACE OF THE CRADLE. VIRGIN SPONGE RUBBER FILLER AS PER ASTM D1752, TYPE 1. SEVERAL LAYERS LAMINATED TO MAKE A TIGHT 6" COMPRESSIBLE LAYER. (SEE CONSTRUCTION SPECIFICATION 31).
3. WRAP EXPOSED PERIMETER OF CONDUIT WITH GEOTEXTILE FABRIC AS INDICATED. GEOTEXTILE SHALL EXTEND AROUND PERIMETER OF PIPE AND DOWN THE SIDES OF THE CRADLE, AND ALONG THE UPSTREAM FACE OF THE HEADWALL.



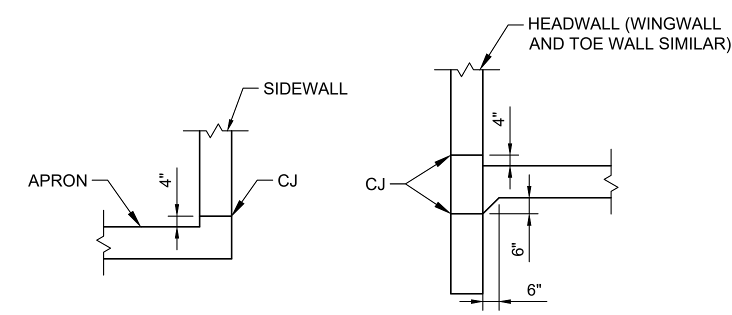
PLAN

0 2 4 8
SCALE IN FEET



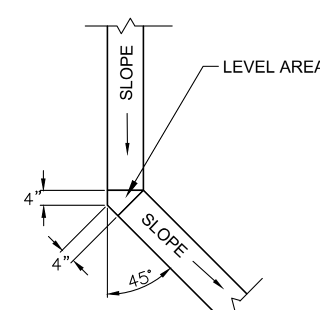
DETAIL A

NOT TO SCALE



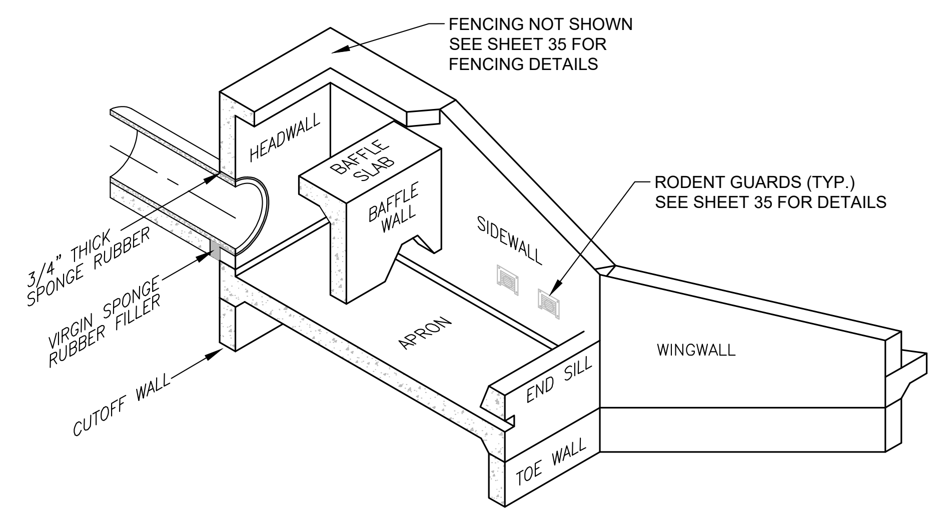
CONSTRUCTION JOINT DETAILS

NOT TO SCALE



PLAN AT JUNCTION
SIDEWALL & WINGWALL

NOT TO SCALE



SECTION ISOMETRIC VIEW

NOT TO SCALE

REVISIONS		
DATE	APPROVED	TITLE

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DATE CHECKED: 8/4/2021

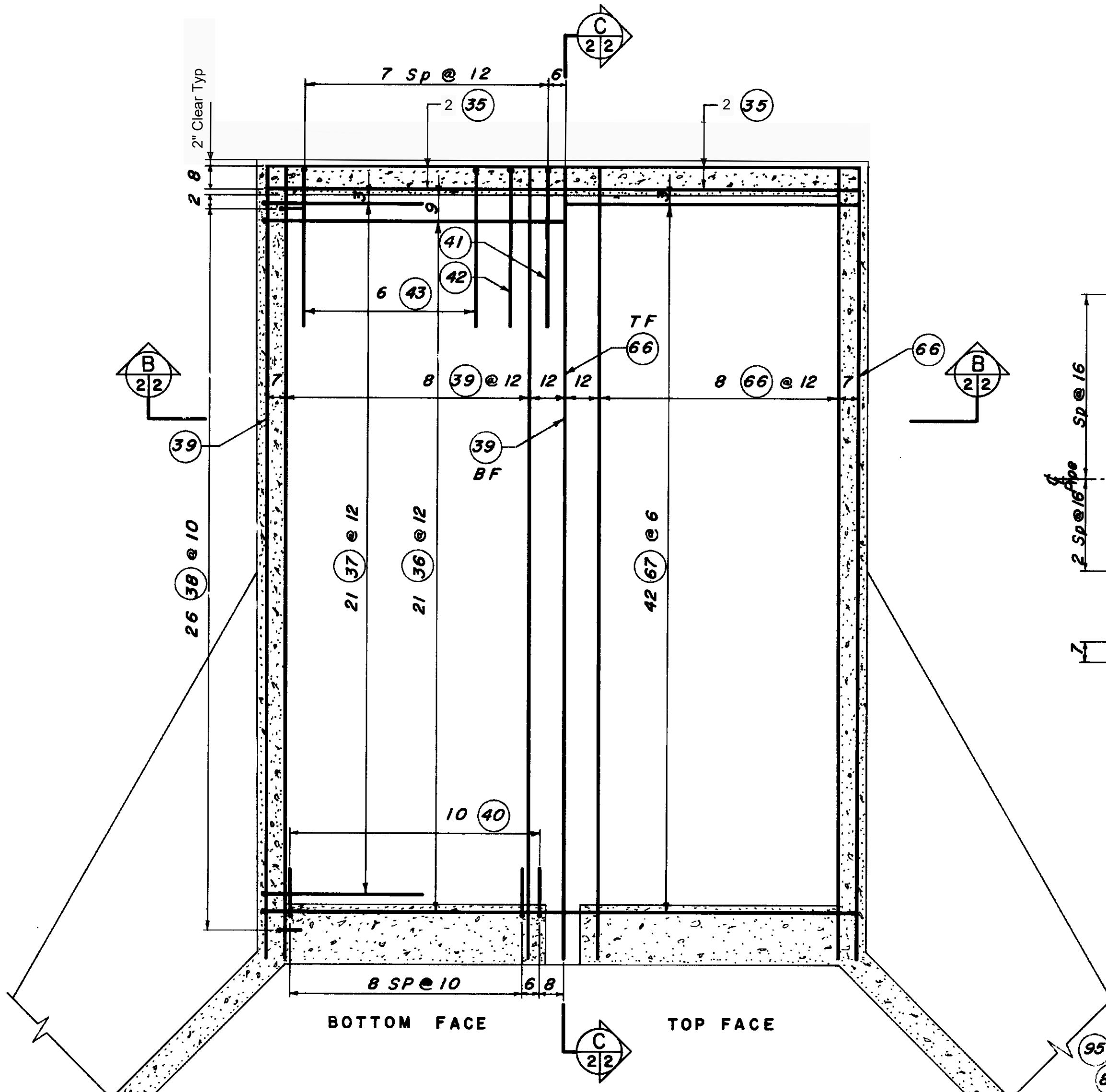
IMPACT BASIN SECTIONS AND DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

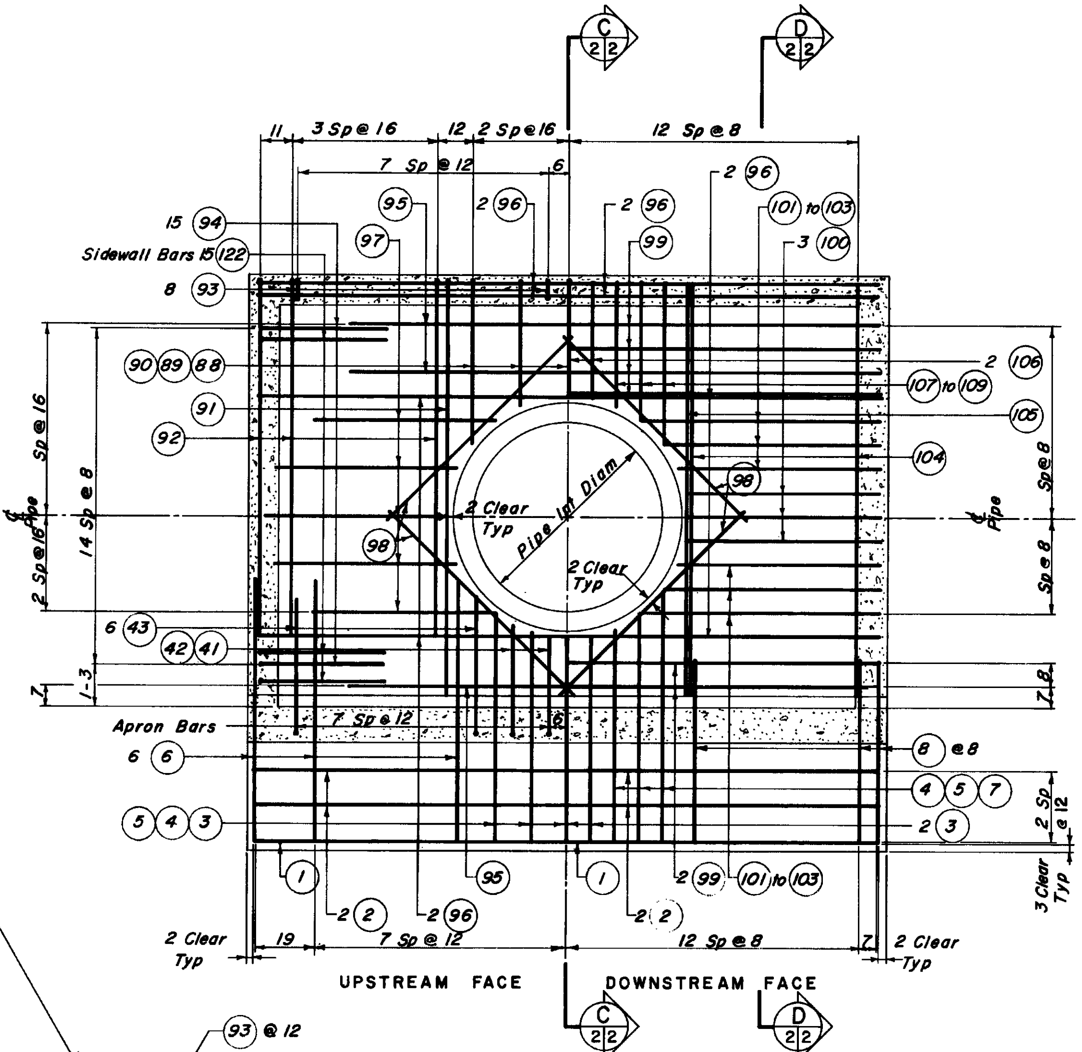
USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754

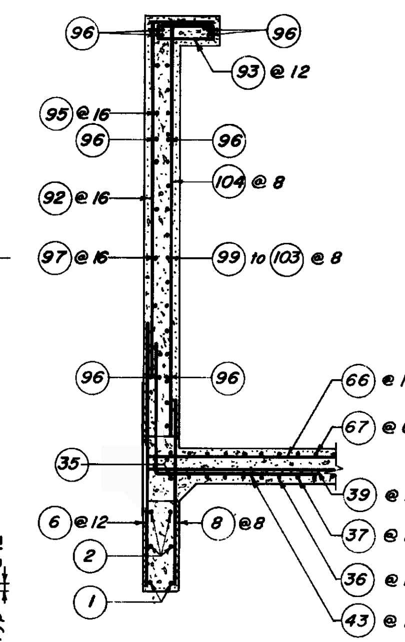
SHEET NO. 30 OF 83



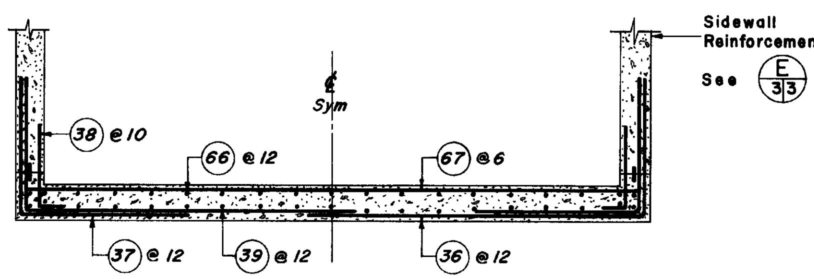
PLAN OF APRON



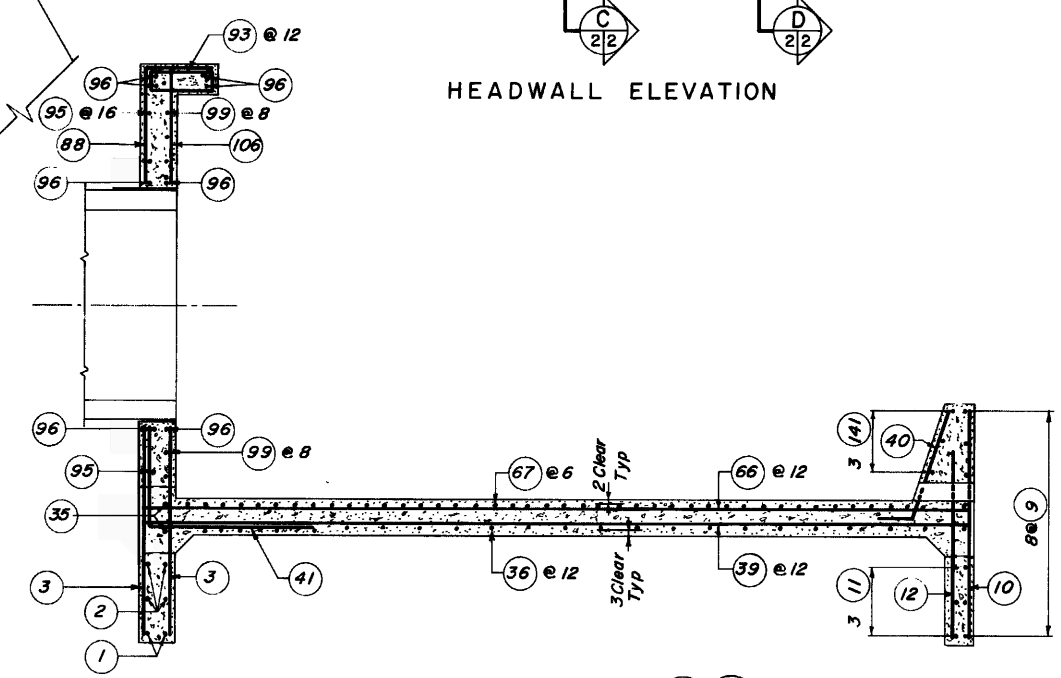
HEADWALL ELEVATION



SECTION D 2/2



SECTION B 2/2



SECTION C 2/2 C 4/2

SCALE IN FEET EXCEPT AS NOTED

ADAPTED FROM	DATE: 12-18
STANDARD IMPACT BASIN	
DESIGN CONSTANTS f'c = 4,000 psi fc = 1,600 psi n = 8 fs = 20,000	
STANDARD DWG. NO. ES-4160	
DATE 1-70	SHEET 2 OF 5

REVISIONS		
DATE	APPROVED	TITLE

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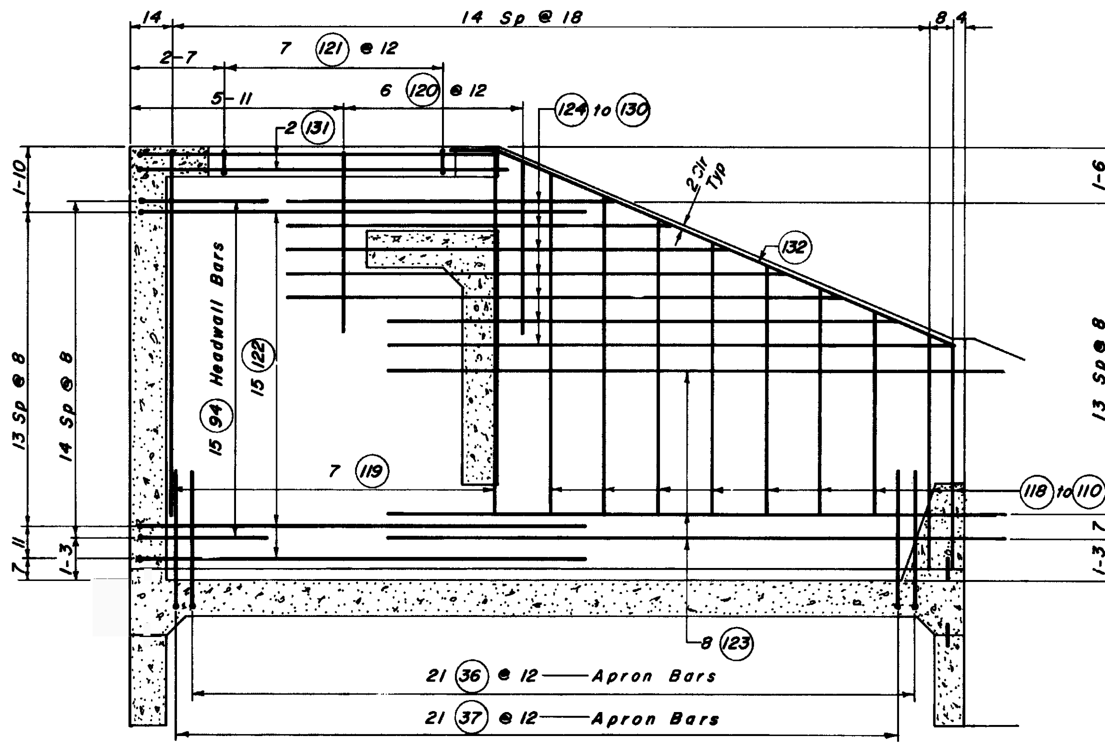
CHECKED BY: SS
FILE NAME: Plum 21 - Sht 31.dwg
DATE CHECKED: 8/4/2021

IMPACT BASIN REINFORCEMENT (1 OF 3)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

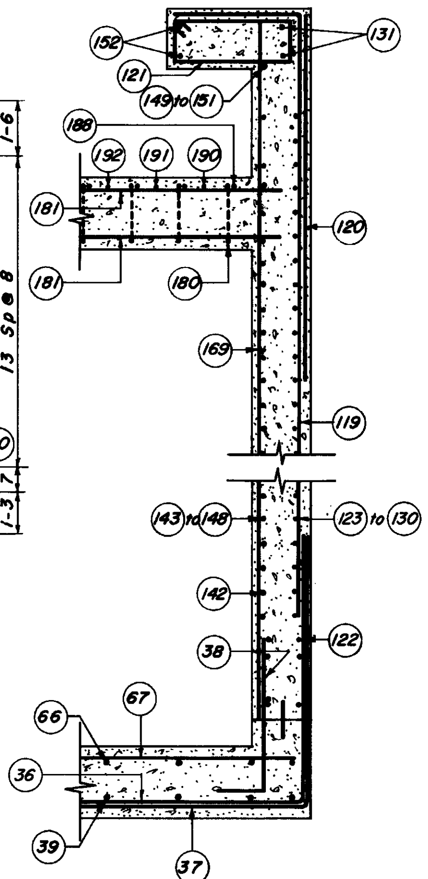
United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX-EN-0754
SHEET NO. 31
OF 83



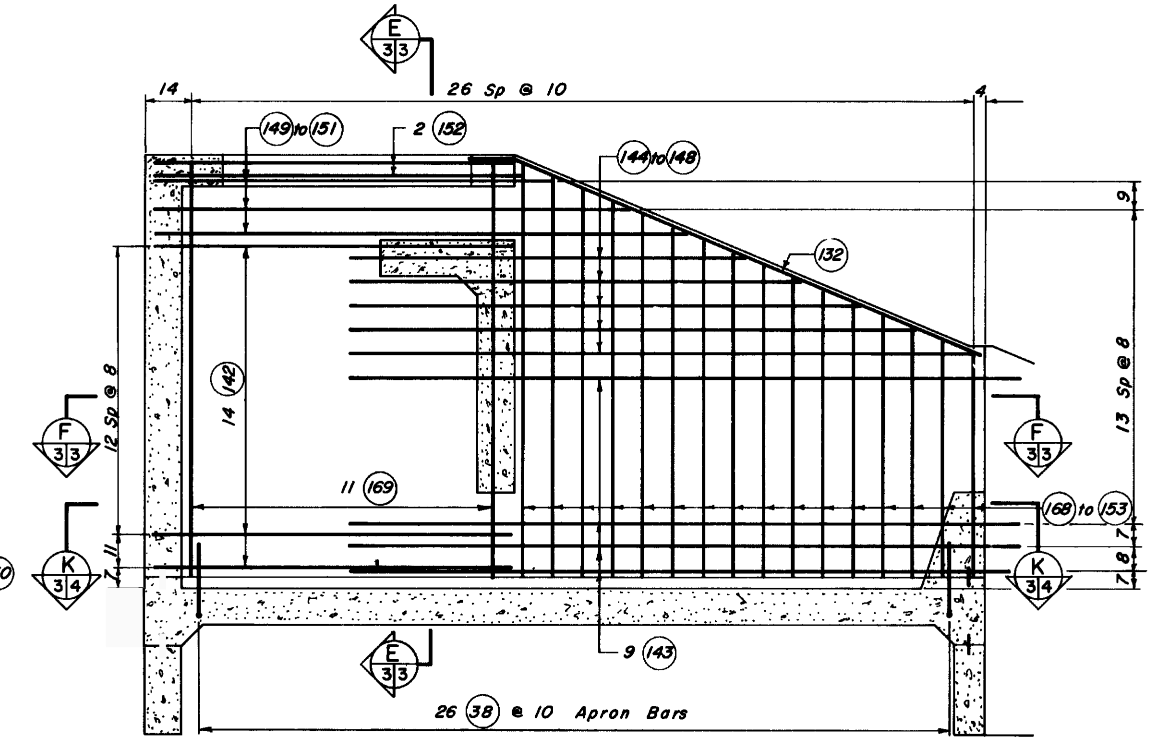
UNEXPOSED FACE

ELEVATION SIDEWALL



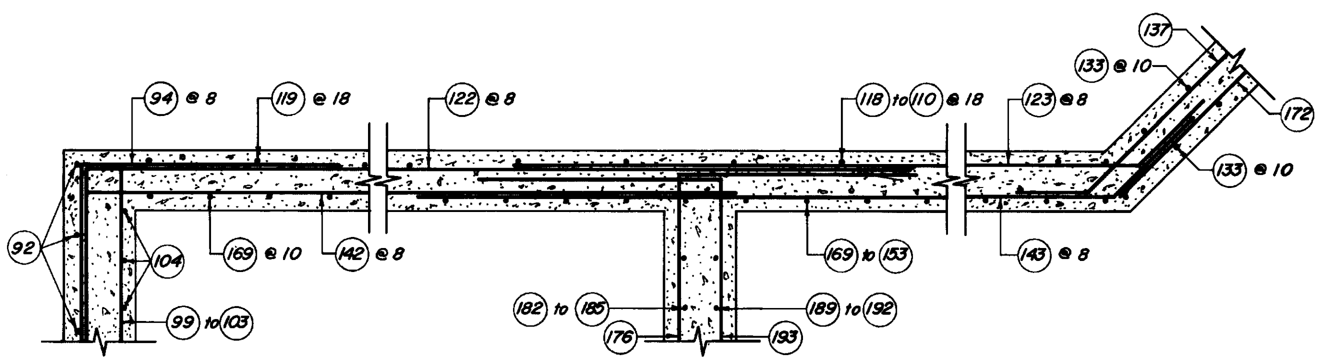
SECTION E/3|3

SCALE IN FEET



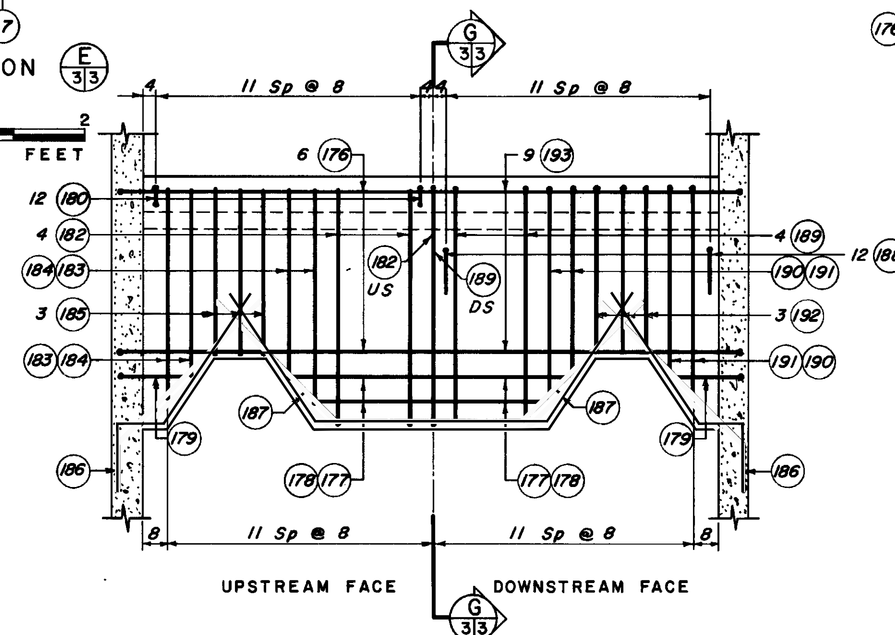
EXPOSED FACE

ELEVATION SIDEWALL

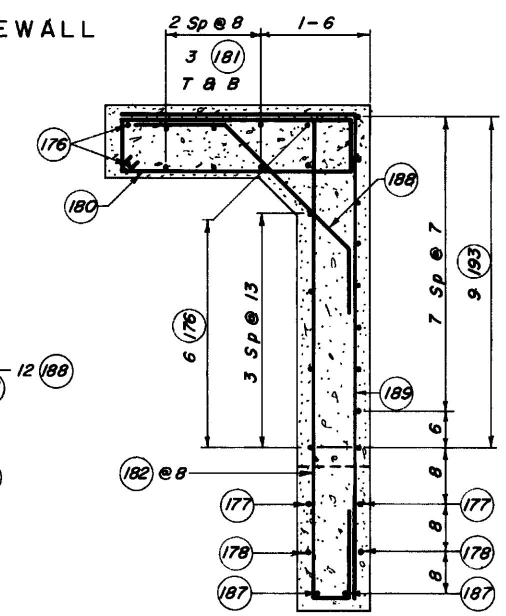


SECTION F/3|3 F/4|3

SCALE IN FEET



BAFFLE ELEVATION



SECTION G/3|3

SCALE IN FEET

SCALE IN FEET EXCEPT AS NOTED

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STANDARD IMPACT BASIN	
DESIGN CONSTANTS f'c = 4,000 psi fc = 1,600 psi n = 8 fs = 20,000	
STANDARD DWG. NO. ES-4160	
DATE 1-70	SHEET 3 OF 5

REVISIONS		
DATE	APPROVED	TITLE

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FILE NAME: Plum 21 - Sht 32.dwg
DATE CHECKED: 8/4/2021

IMPACT BASIN REINFORCEMENT (2 OF 3)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX-EN-0754
SHEET NO. 32
OF 83

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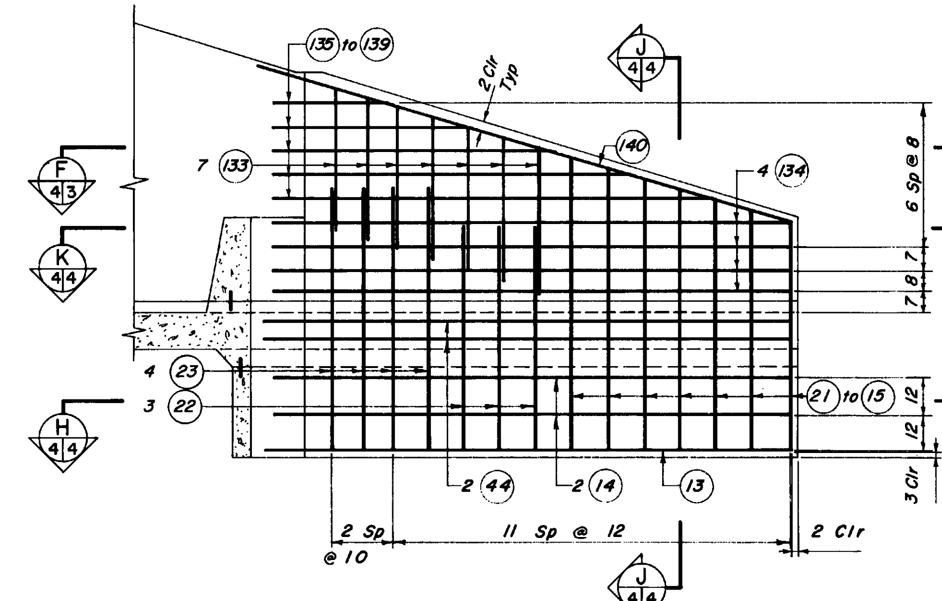
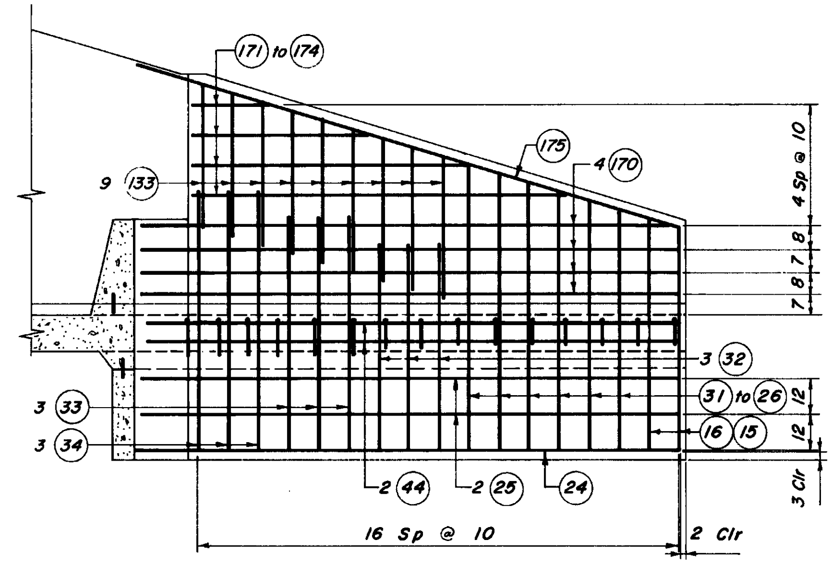


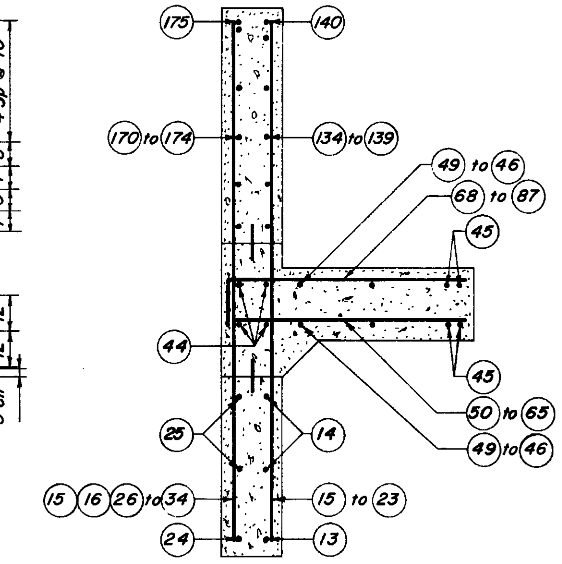
UNEXPOSED FACE

WINGWALL ELEVATION



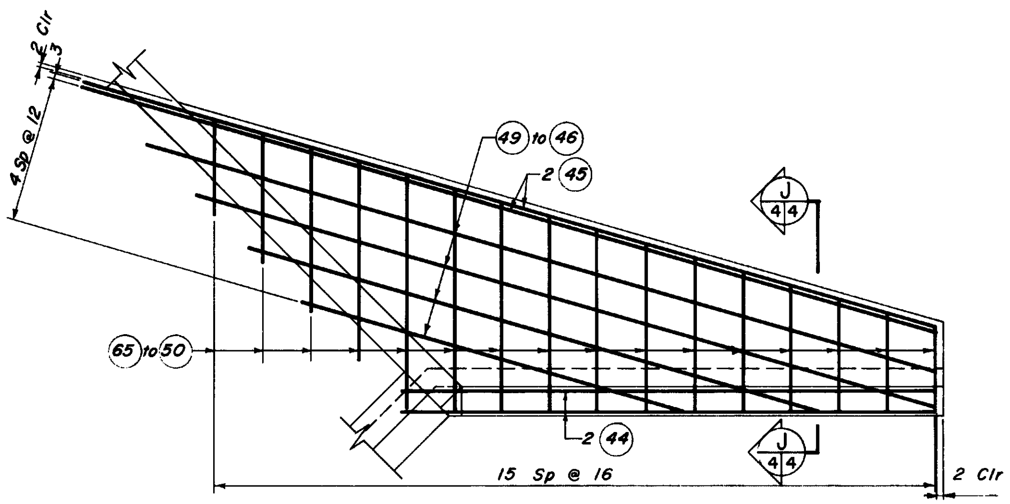
EXPOSED FACE

WINGWALL ELEVATION



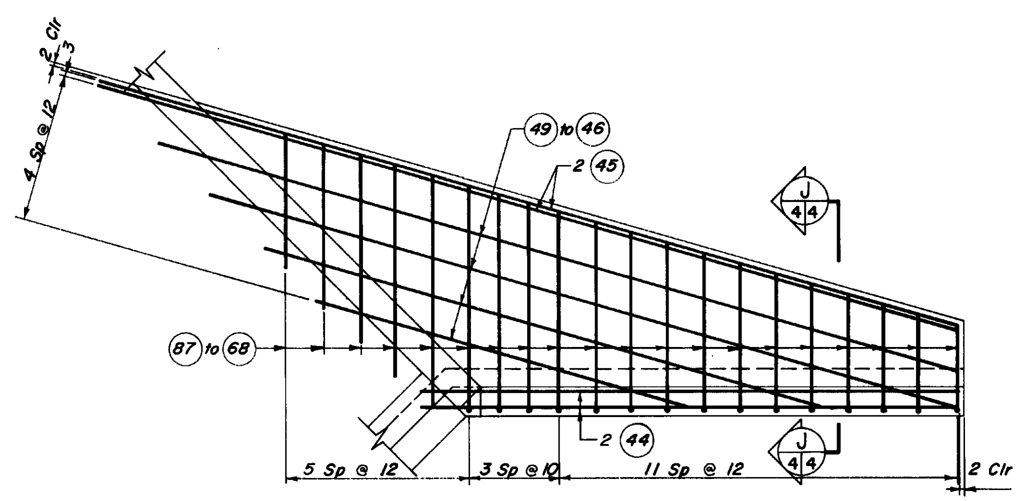
SECTION J/4 4

1 0 2
SCALE IN FEET



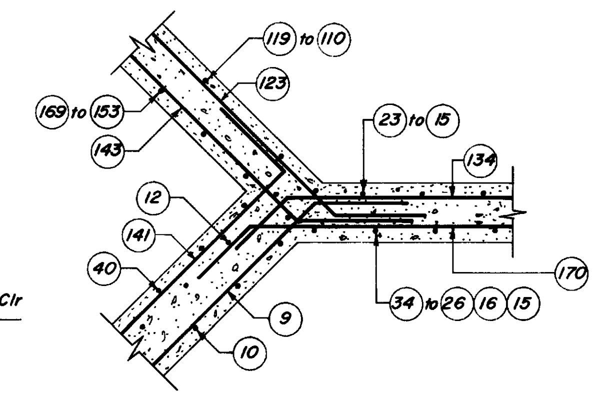
BOTTOM FACE

PLAN WINGWALL FOOTING



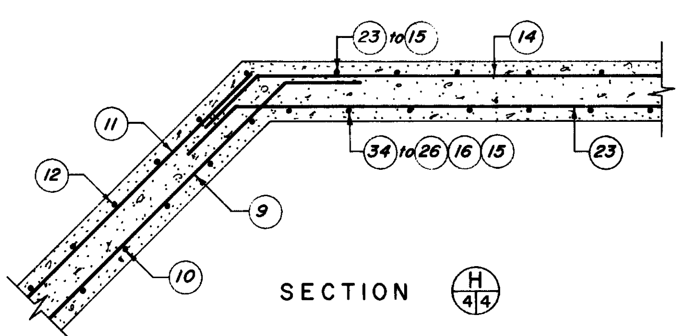
TOP FACE

PLAN WINGWALL FOOTING



SECTION K/4 4 K/3 4

1 0 2
SCALE IN FEET



SECTION H/4 4

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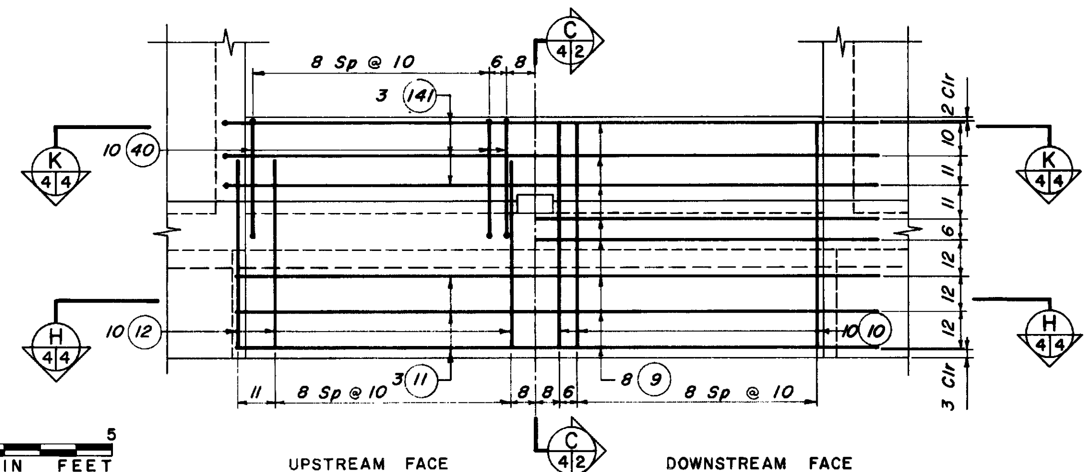
SCALE IN FEET



1 0 5
SCALE IN FEET
EXCEPT AS NOTED

UPSTREAM FACE

DOWNSTREAM FACE

ELEVATION OF END SILL & TOEWALL

ADAPTED FROM	DATE: 12-18
STANDARD IMPACT BASIN	
DESIGN CONSTANTS f'c = 4,000 psi fc = 1,600 psi n = 8 fs = 20,000	
STANDARD DWG. NO. ES-4160	
DATE 1-70	SHEET 4 OF 5

REVISIONS		
DATE	APPROVED	TITLE

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FILE NAME: Plum 21 – Sht 33.dwg
DATE CHECKED: 8/4/2021

IMPACT BASIN REINFORCEMENT (3 OF 3)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX-EN-0754
SHEET NO. 33
OF 83

STEEL SCHEDULE

LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH
Headwall	1	5	2	17-4	St			34-8
"	2	4	4	17-4	St			69-4
"	3	4	4	5-9	St			23-0
"	4							
"	5							
"	6	4	12	7-4	St			88-0
"	7							
"	8							
EndSill	9	5	8	19-8	7	17-2	1-3	157-4
"	10	5	20	6-3	St			125-0
"	11	5	3	16-7	St			49-9
"	12	4	20	5-3	St			105-0
Wingwall	13	5	2	15-0	19	1-3	13-9	30-0
"	14	4	4	14-9	19	1-0	13-9	59-0
"	15	5	4	6-3	St			25-0
"	16	4	4	6-6	St			26-0
"	17	4	2	6-10	St			13-8
"	18	4	2	7-1	St			14-2
"	19	4	2	7-5	St			14-10
"	20	4	2	7-8	St			15-4
"	21	4	2	8-0	St			16-0
"	22	5	6	6-2	St			37-0
"	23	6	8	7-3	St			58-0
"	24	5	2	15-6	19	1-3	14-3	31-0
"	25	4	4	15-3	19	1-0	14-3	61-0
"	26	4	2	6-8	St			13-4
"	27	4	2	6-11	St			13-10
"	28	4	2	7-2	St			14-4
"	29	4	2	7-5	St			14-10
"	30	4	2	7-8	St			15-4
"	31	4	2	7-11	St			15-10
"	32	4	6	5-9	St			34-6
"	33	4	6	6-6	St			39-0
"	34	4	6	7-3	St			43-6
Apron	35	5	4	17-4	St			69-4
"	36	5	42	13-1	21	3-9	9-4	549-6
"	37	5	42	8-5	21	3-9	4-8	353-6
"	38	4	52	2-9	21	2-1	0-8	143-0
"	39	4	19	22-11	St			435-5
"	40	5	20	4-4	22	1-0	3-4	86-8
"	41	6	2	7-3	21	2-7	4-8	14-6
"	42							

LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH
Apron	43	6	12	8-4	21	3-8	4-8	100-0
Wingwall	44	4	8	14-9	St			118-0
"	45	6	8	24-9	St			198-0
"	46	4	4	22-10	St			91-4
"	47	4	4	21-6	St			86-0
"	48	4	4	16-6	St			66-0
"	49	4	4	11-2	St			44-8
"	50	4	2	2-4	St			4-8
"	51	4	2	2-8	St			5-4
"	52	4	2	3-1	St			6-2
"	53	4	2	3-6	St			7-0
"	54	4	2	3-10	St			7-8
"	55	4	2	4-2	St			8-4
"	56	4	2	4-7	St			9-2
"	57	4	2	5-0	St			10-0
"	58	4	2	5-4	St			10-8
"	59	4	2	5-9	St			11-6
"	60	4	2	6-1	St			12-2
"	61	4	2	6-2	St			12-4
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"	63	4	2	4-3	St			8-6
"	64	4	2	3-4	St			6-8
"	65	4	2	2-4	St			4-8
Apron	66	6	19	22-11	St			435-5
"	67	4	42	17-4	St			728-0
Wingwall	68	4	2	3-0	21	0-8	2-4	6-0
"	69	4	2	3-3	21	0-8	2-7	6-6
"	70	4	2	3-6	21	0-8	2-10	7-0
"	71	4	2	3-10	21	0-8	3-2	7-8
"	72	4	2	4-1	21	0-8	3-5	8-2
"	73	4	2	4-5	21	0-8	3-9	8-10
"	74	4	2	4-8	21	0-8	4-0	9-4
"	75	5	2	5-2	21	0-10	4-4	10-4
"	76	5	2	5-5	21	0-10	4-7	10-10
"	77	5	2	5-8	21	0-10	4-10	11-4
"	78	6	2	6-2	21	1-0	5-2	12-4
"	79	6	2	6-5	21	1-0	5-5	12-10
"	80	6	2	6-8	21	1-0	5-8	13-4
"	81	6	2	6-11	21	1-0	5-11	13-10
"	82	6	2	7-2	21	1-0	6-2	14-4
"	83	5	2	6-6	St			13-0
"	84	5	2	5-9	St			11-6

LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH
Wingwall	85	4	2	5-1	St			10-2
"	86	4	2	4-4	St			8-8
"	87	4	2	3-8	St			7-4
Headwall	88							
"	89							
"	90							
"	91	5	2	13-4	21	11-6	1-10	26-8
"	92							
"	93	4	16	5-5	T1	0-6	1-10	86-8
"	94	5	30	7-2	21	3-7	3-7	215-0
"	95							
"	96	5	8	17-4	St			138-8
"	97							
"	98	5	8	7-3	St			58-0
"	99							
"	100							
"	101							
"	102							
"	103							
"	104							
"	105	5	2	11-5	St			22-10
"	106							
"	107							
"	108							
"	109							
Sidewall	110	4	2	6-2	St			12-4
"	111	4	2	6-5	St			12-10
"	112	4	2	5-8	St			11-4
"	113	4	2	6-3	St			12-6
"	114	4	2	6-11	St			13-10
"	115	4	2	7-6	St			15-0
"	116	4	2	8-2	St			16-4
"	117	4	2	8-10	St			17-8
"	118	4	2	9-5	St			18-10
"	119	4	14	11-9	21	10-1	1-8	164-6
"	120	4	12	5-0	St			60-0
"	121	4	14	5-1	T1	0-6	1-8	71-2
"	122	5	30	16-0	21	3-7	12-5	480-0
"	123	5	16	17-8	19	1-3	16-5	282-8
"	124	5	2	15-10	St			31-8
"	125	5	2	14-6	St			29-0
"	126	5	2	15-4	St			30-8

LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH
Sidewall	127	5	2	13-10	St			27-8
"	128	4	2	12-3	St			24-6
"	129	4	2	10-8	St			21-4
"	130	4	2	9-1	St			18-2
"	131	5	4	11-3	21	1-3	10-0	45-0
"	132	5	4	15-1	23	1-3	13-10	60-4
Wingwall	133	4	32	4-0	St			128-0
"	134	4	8	14-11	19	1-0	13-11	119-4
"	135	4	2	12-8	19	1-0	11-8	25-4
"	136	4	2	10-5	19	1-0	9-5	20-10
"	137	4	2	8-2	19	1-0	7-2	16-4
"	138	4	2	5-11	19	1-0	4-11	11-10
"	139	4	2	3-8	19	1-0	2-8	7-4
"	140	5	2	15-7	19	1-3	14-4	31-2
EndSill	141	5	3	19-8	17	1-3	17-2	59-0
Sidewall	142	4	28	10-0	St			280-0
"	143	6	18	18-9	19	1-6	17-3	337-6
"	144	6	2	17-2	St			34-4
"	145	6	2	15-11	St			31-10
"	146	5	2	14-4	St			28-8
"	147	5	2	12-9	St			25-6
"	148	5	2	11-3	St			22-6
"	149	4	2	14-6	St			29-0
"	150	4	2	12-11	St			25-10
"	151	4	2	11-4	St			22-8
"	152	5	4	10-11	19	2-4	8-7	43-8
"	153	4	2	6-2	St			12-4
"	154	4	2	6-5	St			12-10
"	155	4	2	6-9	St			13-6
"	156	4	2	7-1	St			14-2
"	157	4	2	7-6	St			15-0
"	158	4	2	7-10	St			15-8
"	159	4	2	8-2	St			16-4
"	160	4	2	8-6	St			17-0
"	161	4	2	8-10	St			17-8
"	162	4	2	9-3	St			18-6
"	163	4	2	9-7	St			19-2
"	164	4	2	9-11	St			19-10
"	165	4	2	10-3	St			20-6
"	166	4	2	10-7	St			21-2
"	167	4	2	10-11	St			21-10
"	168	4	2	11-4	St			22-8

LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH
Sidewall	169	4	24	11-6	St			276-0
Wingwall	170	4	8	15-3	19	1-0	14-3	122-0
"	171	4	2	10-9	St			21-6
"	172	4	2	8-0	St			16-0
"	173	4	2	5-2	St			10-4
"	174	4	2	2-5	St			4-10
"	175	5	2	15-2	19	1-3	13-11	30-4
Baffle	176	5	8	23-10	17	3-4	17-2	190-8
"	177	5	2	8-3	St			16-6
"	178	5	2	7-3	St			14-6
"	179	5	4	3-1	21	1-3	1-10	12-4
"	180	4	24	8-7	T1	0-8	3-3	206-0
"	181	6	6	20-2	17	1-6	17-2	121-0
"	182	5	9	8-4	24	6-7	0-6	75-0
"	183	5	4	7-8	24	5-11	0-6	30-8
"	184	5	4	7-0	24	5-3	0-6	28-0
"	185	5	6	6-4	24	4-7	0-6	38-0
"	186	6	4	7-2	25	1-3	4-10	28-8
"	187	6	2	17-4	7	6-3	4-10	34-8
"	188	5	24	4-11	7	2-5	1-3	116-0
"	189	5	9	9-11	21	3-3	6-8	89-3
"	190	5	4	9-3	21	3-3	6-0	37-0
"	191	5	4	8-7	21	3-3	5-4	34-4
"	192	5	6	7-11	21	3-3	4-8	47-6
"	193	7	9	23-10	17	3-4	17-2	214-6

HEAD WALL STEEL SCHEDULE

SCHEDULE OF BARS VARYING WITH CONDUIT DIAMETER

42 I D CONDUIT

LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH
Headwall	4	4	4	6-1	St			24-4
"	5	4	4	6-11	St			27-8
"	7	None						
"	8	4	20	5-1	St			101-8
Apron	42	6	2	7-11	21	3-3	4-8	15-10
Headwall	88	4	1	6-11	21	5-1	1-10	6-11
"	89	4	2	7-4	21	5-6	1-10	14-8
"	90	None						
"	92	4	12	11-8	21	9-10	1-10	140-0
"	95	4	5	12-2	St			60-10
"	97	4	6	5-1	St			30-6
"	99	4	9	17-4	St			156-0
"	100	4	6	6-4	St			38-0
"	101	4	4	6-9	St			27-0
"	102	4	4	7-6	St			30-0
"	103	None						
"	104	4	18	11-5	St			205-6
"	106	4	3	5-1	St			15-3
"	107	4	2	5-6	St			11-0
"	108	4	2	6-2	St			12-4
"	109	None						

48 I D CONDUIT

LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH
Headwall	4	4	4	6-1	St			24-4
"	5	4	4	6-8	St			26-8
"	7	None						
"	8	4	20	5-1	St			101-8
Apron	42	6	2	7-10	21	3-2	4-8	15-8
Headwall	88	4	1	6-4	21	4-6	1-10	6-4
"	89	4	2	6-9	21	4-11	1-10	13-6
"	90	None						
"	92	4	12	11-8	21	9-10	1-10	140-0
"	95	4	4	12-2	St			48-8
"	97	4	6	5-1	St			30-6
"	99	4	8	17-4	St			138-8
"	100	4	6	6-0	St			36-0
"	101	4	4	6-4	St			25-4
"	102	4	4	6-11	St			27-8
"	103	None						
"	104	4	18	11-5	St			205-6
"	106	4	3	4-6	St			13-6
"	107	4	2	4-11	St			9-10
"	108	4	2	5-5	St			10-10
"	109	None						

54 I D CONDUIT

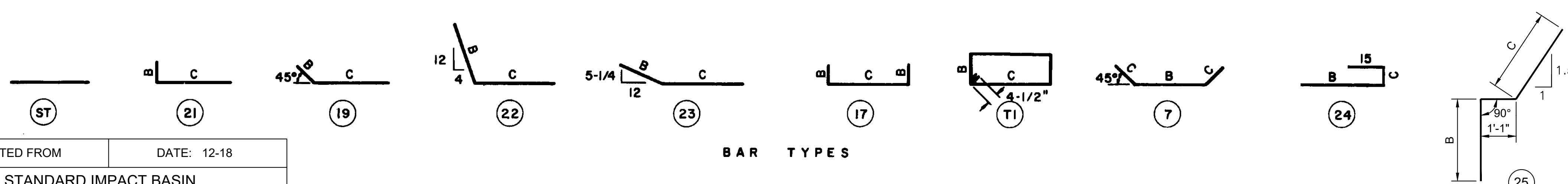
LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH
Headwall	4	4	4	6-0	St			24-0
"	5	4	4	6-6	St			26-0
"	7	4	2	7-4	St			14-8
"	8	4	18	5-1	St			91-6
Apron	42	6	2	7-9	21	3-1	4-8	15-6
Headwall	88	4	1	5-10	21	4-0	1-10	5-10
"	89	4	2	6-1	21	4-3	1-10	12-2
"	90	4	2	7-6	21	5-8	1-10	15-0
"	92	4	10	11-8	21	9-10	1-10	116-8
"	95	4	3	12-2	St			36-6
"	97	4	10	5-1	St			50-10
"	99	4	7	17-4	St			121-4
"	100	4	6	5-9	St			34-6
"	101	4	4	6-1	St			24-4
"	102	4	4	6-6	St			26-0
"	103	4	4	7-6	St			30-0
"	104	4	16	11-5	St			182-8
"	106	4	3	4-0	St			12-0
"	107	4	2	4-3	St			8-6
"	108	4	2	4-9	St			9-6
"	109	4	2	5-8	St			11-4

60 I D CONDUIT

LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH
Headwall	4	4	4	5-11	St			23-8
"	5	4	4	6-5	St			25-8
"	7	4	2	7-1	St			14-2
"	8	4	18	5-1	St			91-6
Apron	42	6	2	7-8	21	3-0	4-8	15-4
Headwall	88	4	1	5-3	21	3-5	1-10	5-3
"	89	4	2	5-7	21	3-9	1-10	11-2
"	90	4	2	6-8	21	4-10	1-10	13-4
"	92	4	10	11-8	21	9-10	1-10	116-8
"	95	4	3	12-2	St			36-6
"	97	4	10	5-1	St			50-10
"	99	4	7	17-4	St			121-4
"	100	4	6	5-5	St			32-6
"	101	4	4	5-9	St			23-0
"	102	4	4	6-2	St			24-8
"	103	4	4	6-11	St			27-8
"	104	4	16	11-5	St			182-8
"	106	4	3	3-5	St			10-3
"	107	4	2	3-9	St			7-6
"	108	4	2	4-1	St			8-2
"	109	4	2	4-10	St			9-8

63 I D CONDUIT

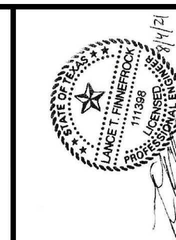
LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH
Headwall	4	4	4	5-10	St			23-4
"	5	4	4	6-4	St			25-4
"	7	4	2	6-11	St			13-10
"	8	4	18	5-1	St			91-6
Apron	42	6	2	7-7	21	2-11	4-8	15-2
Headwall	88	4	1	5-0	21	3-2	1-10	5-0
"	89	4	2	5-3	21	3-5	1-10	10-6
"	90	4	2	6-3	21	4-5	1-10	12-6
"	92	4	10	11-8	21	9-10	1-10	116-8
"	95	4	3	12-2	St			36-6
"	97	4	10	5-1	St			50-10
"	99	4	5	17-4	St			86-8
"	100	4	7	5-3	St			36-9
"	101	4	4	5-7	St			22-4
"	102	4	4	5-11	St			23-8
"	103	4	4	6-7	St			26-4
"	104	4	16	11-5	St			182-8
"	106	4	3	3-2	St			9-6
"	107	4	2	3-5	St			6-10
"	108	4	2	3-9	St			7-6
"	109	4	2	4-5	St			8-10



BAR TYPES

ADAPTED FROM	DATE: 12-18
STANDARD IMPACT BASIN	
DESIGN CONSTANTS f'c = 4,000 psi fc = 1,600 psi n = 8 fs = 20,000	
STANDARD DWG. NO. ES-4160	
DATE 1-70	SHEET 5 OF 5

REVISIONS		
DATE	APPROVED	TITLE



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FILE NAME: Plum 21 - Sht 34.dwg
DATE CHECKED: 8/4/2021

IMPACT BASIN REINFORCEMENT SCHEDULE

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX-EN-0754
SHEET NO. 34
OF 83

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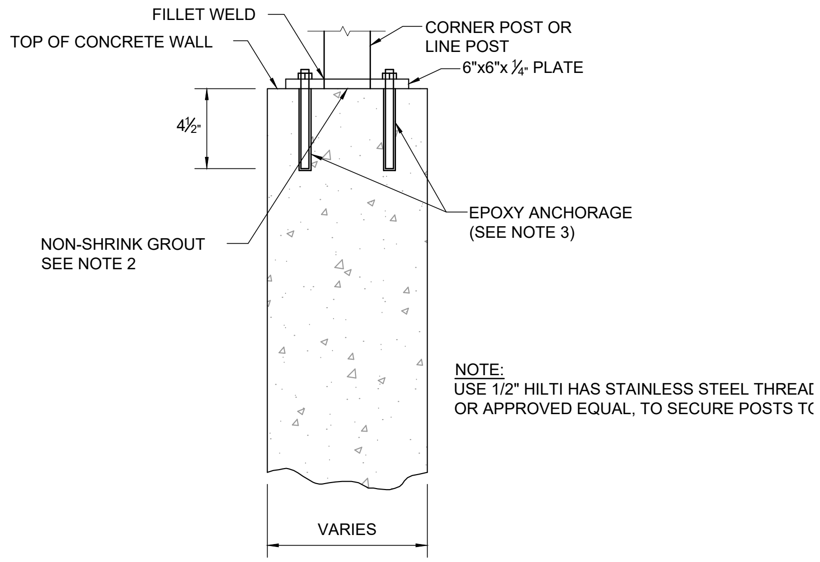
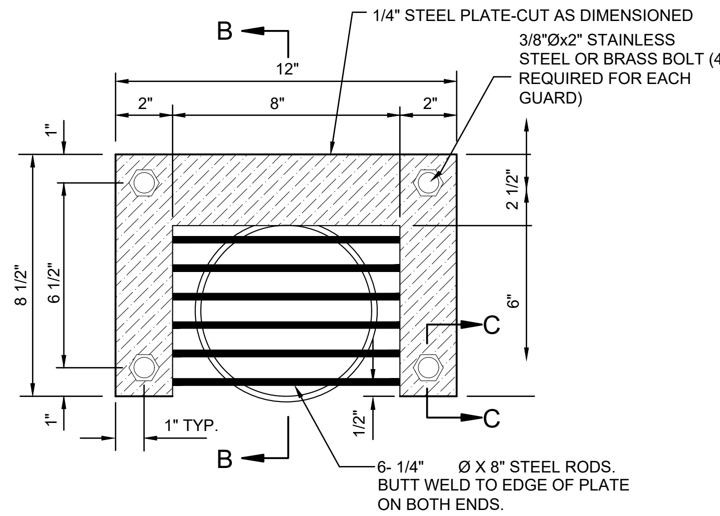
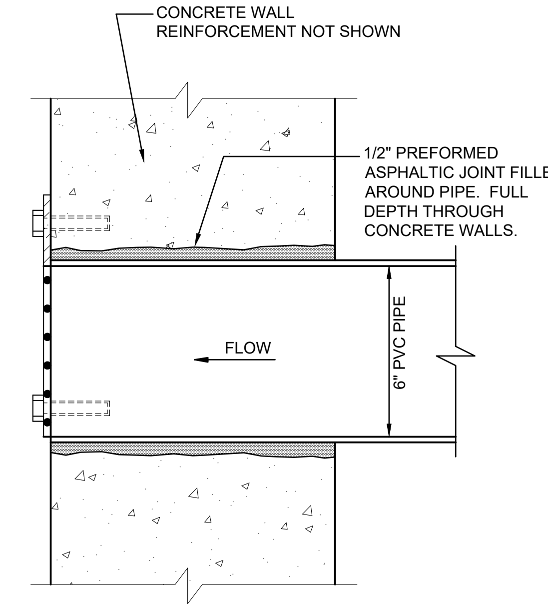


FENCE POST ANCHORAGE DETAIL
NOT TO SCALE

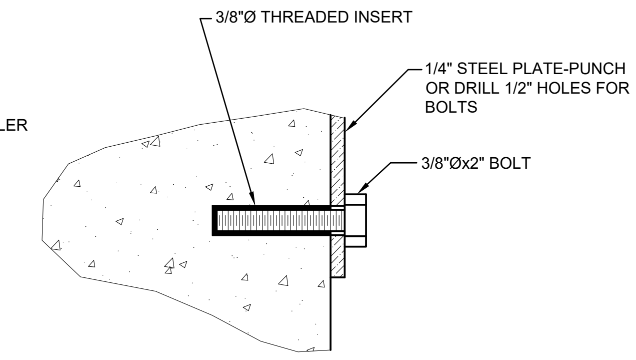


ELEVATION
NOT TO SCALE



SECTION B-B
NOT TO SCALE

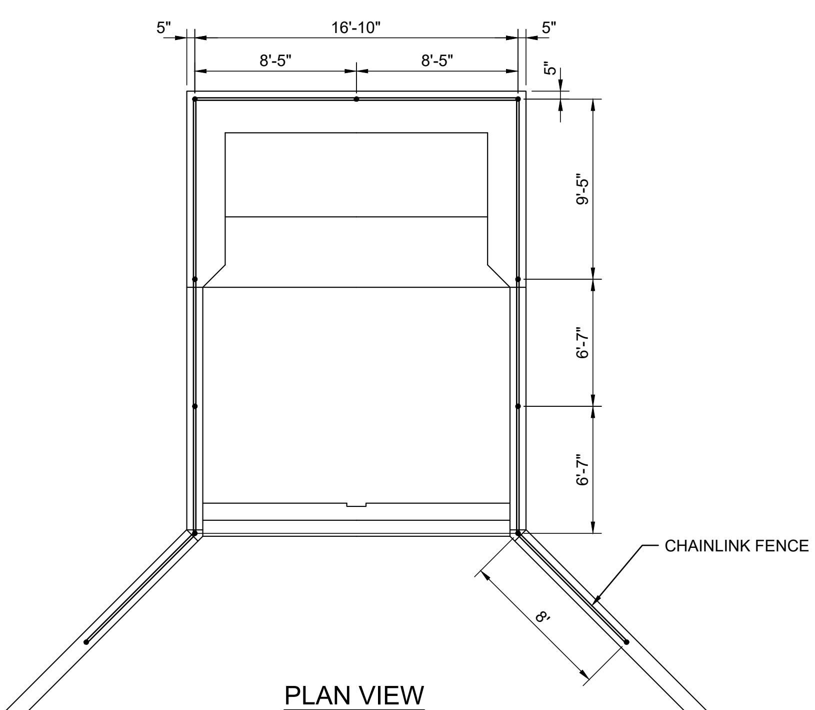
RODENT GUARD DETAILS (IMPACT BASIN)
NOT TO SCALE



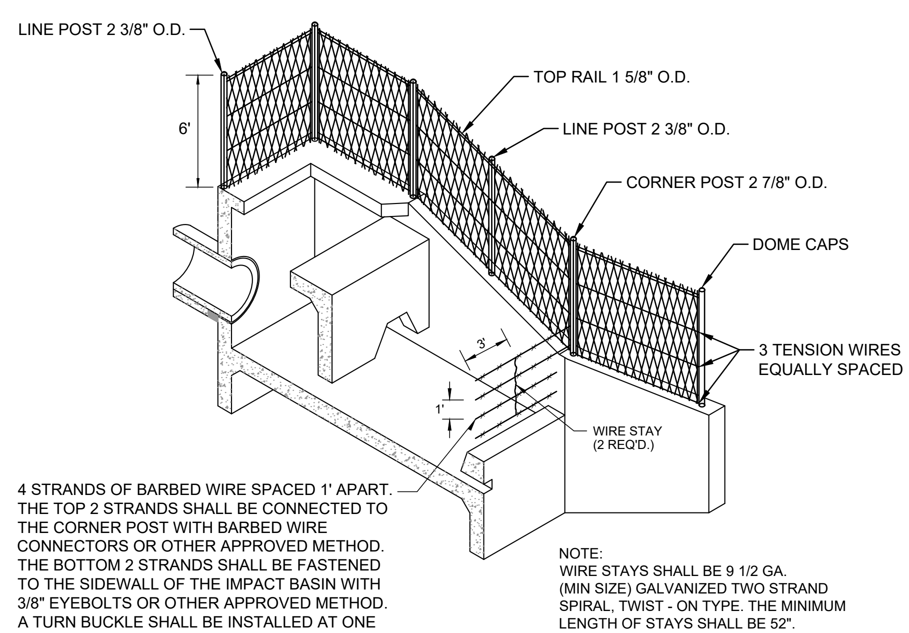
SECTION C-C
NOT TO SCALE

NOTES:

1. RODENT GUARDS SHALL BE GALVANIZED AFTER FABRICATION. SEE MATERIAL SPECIFICATION 581 AND CONSTRUCTION SPECIFICATION 81. RODENT GUARDS TO BE PLACED OVER ALL DRAIN PIPE OUTFALLS.
2. NON-SHRINK GROUT TO BE APPLIED IF AND AS DIRECTED BY THE CONTRACTING OFFICER, FOR FILLING IN IRREGULARITIES ON THE CONCRETE SURFACE AND ENSURING A FLUSH MOUNTED BASE PLATE.
3. CONTRACTOR SHOULD ADJUST THE LOCATION OF THE ANCHORS TO AVOID REINFORCEMENT AND PROVIDE FULL EMBEDMENT OF ANCHORS. USE HILTI HY-200 EPOXY, OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATION.



PLAN VIEW
NOT TO SCALE



HALF ISOMETRIC
NOT TO SCALE

BILL OF MATERIALS FOR IMPACT BASIN CHAINLINK FENCE

QUANITITY	MATERIAL
66'-0"	2 7/8" O.D. TUBULAR STEEL PIPE FOR CORNER POST (CUT INTO 11 - 6' POSTS)
18'-0"	2 3/8" O.D. TUBULAR STEEL PIPE FOR ONE LINE POST (CUT INTO 3 - 6' POSTS)
78'-0"	1 5/8" O.D. TUBULAR STEEL PIPE FOR TOP RAIL (CUT AS REQUIRED)
78'-0"	6'-0" HIGH CHAIN LINK FABRIC (SELVAGE SHALL BE KNUCKLED AT BOTTOM AND TOP)
14	STRETCHER BARS
70	STRETCHER BANDS
20	OFFSET CUPS (FOR TOP RAIL)
14	DOME TOPS
234'-0"	TENSION WIRE
72'-0"	BARBED WIRE
4	BARBED WIRE CONNECTORS
48	ANCHOR BOLTS
4	3/8" EYE BOLTS
4	TURN BUCKLES

NOTE: QUANTITY OF TIE WIRE REQUIRED NOT INCLUDED IN TABLE ABOVE.

FOR TYPE AND SPECIFICATIONS OF FENCING MATERIALS SEE CONSTRUCTION SPECIFICATION 91.

REVISIONS		
DATE	APPROVED	TITLE

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FILE NAME: Plum 21 - Sht 35.dwg
DATE CHECKED: 8/4/2021

IMPACT BASIN DETAILS
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX-EN-0754
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OF 83

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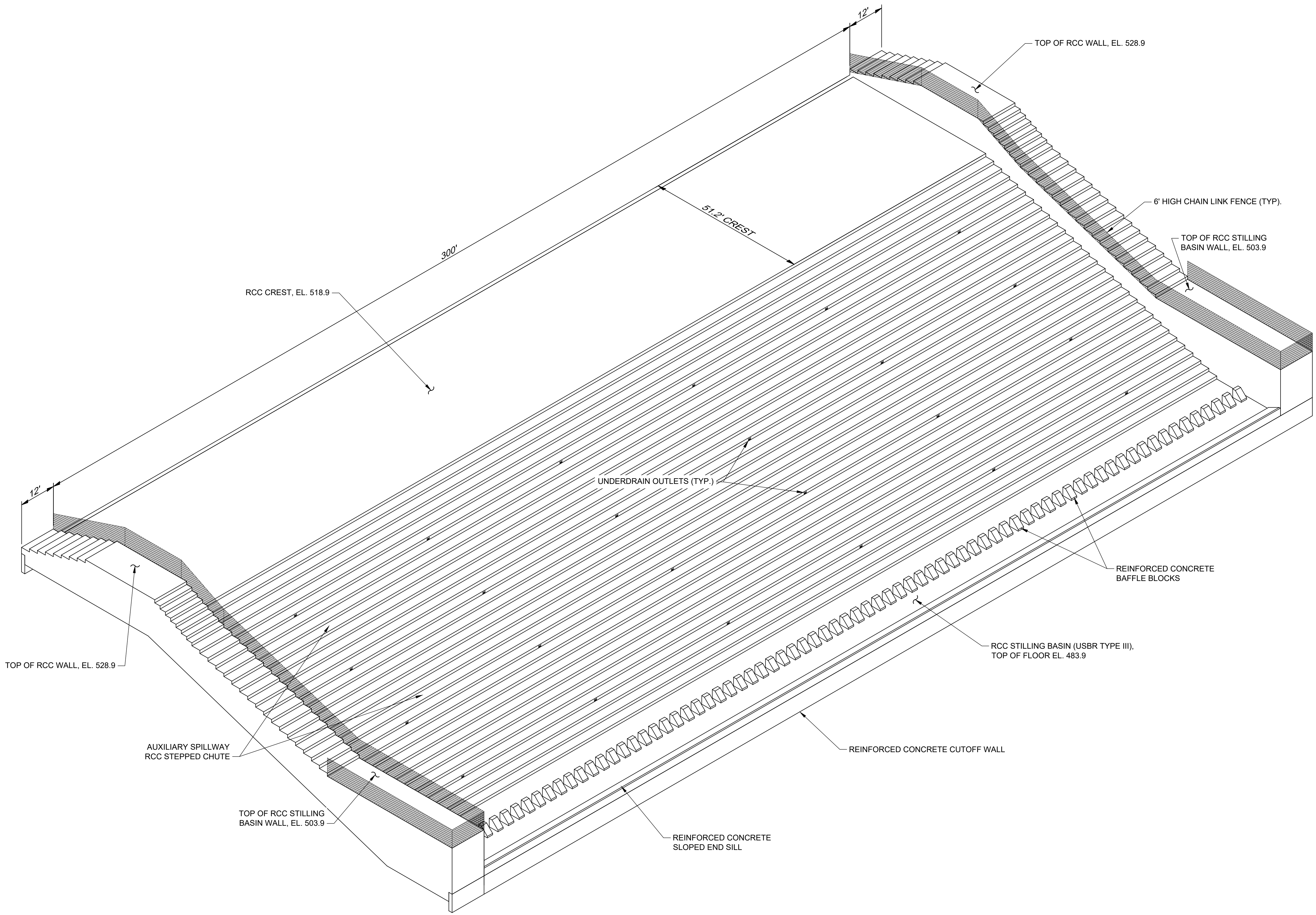

AUXILIARY SPILLWAY ISOMETRIC

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

DESIGNED BY: KNF
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FILE NAME: Plum 21 – Sht 36.dwg
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United States Department of Agriculture
USDA
Natural Resources Conservation Service

DRAWING NO. TX-EN-0754

SHEET NO. 36 OF 83

REVISIONS		
DATE	APPROVED	TITLE

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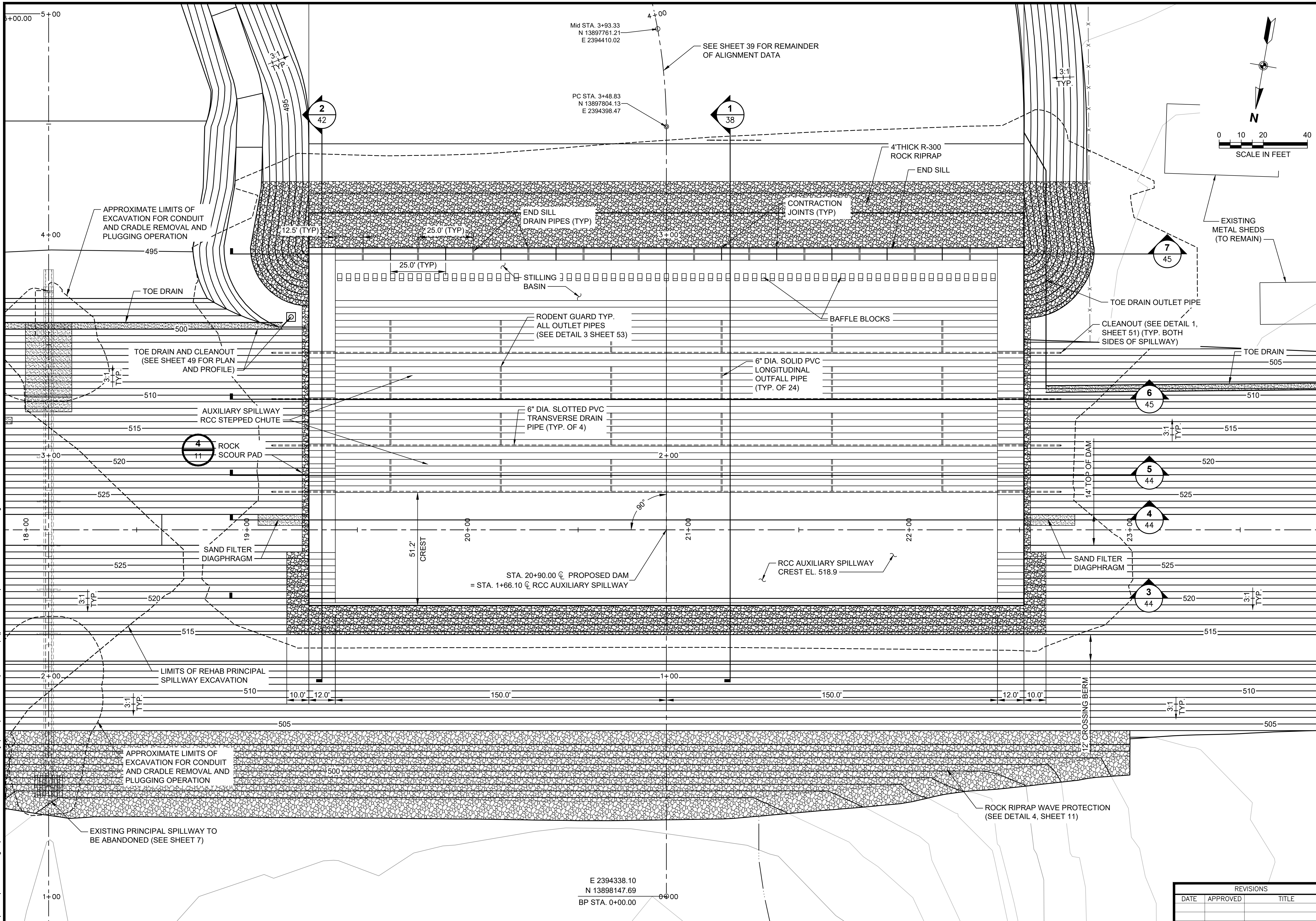

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DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 37.dwg
DATE CHECKED: 8/4/2021

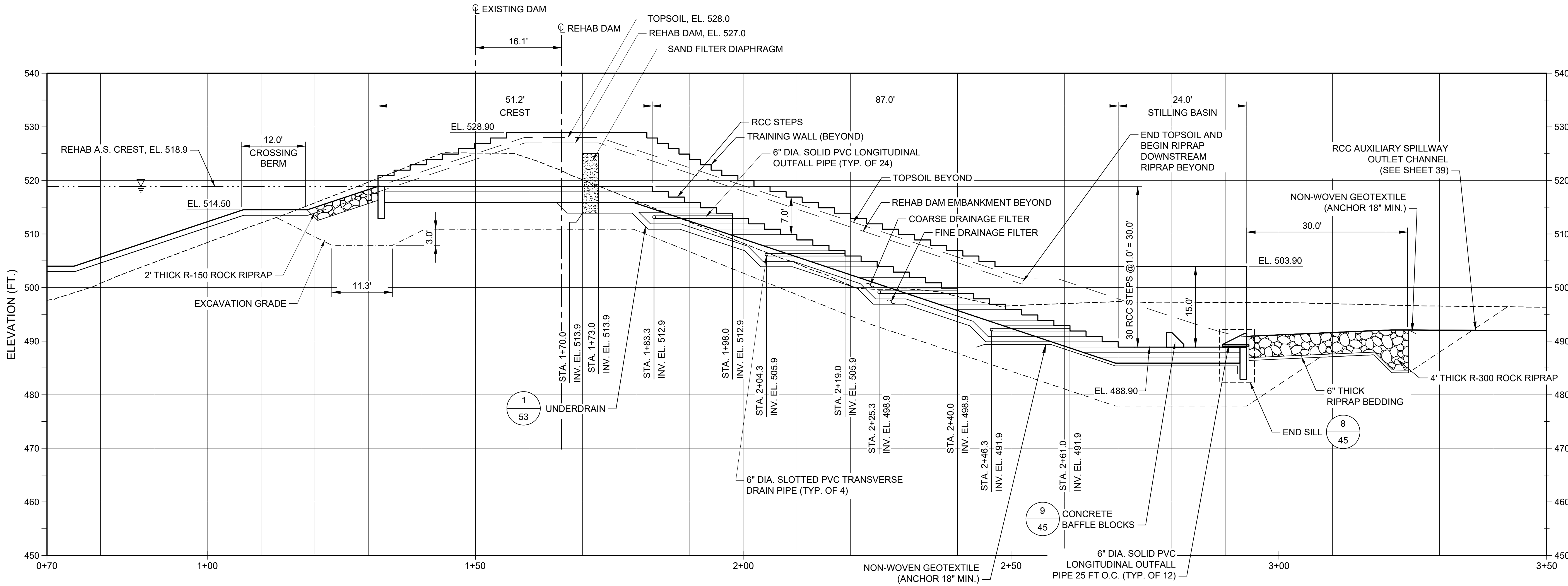
AUXILIARY SPILLWAY PLAN

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

REVISIONS		
DATE	APPROVED	TITLE

DRAWING NO. TX–EN–0754
SHEET NO. 37
OF 83



1
34
TYPICAL AUXILIARY SPILLWAY SECTION AT OUTFALL PIPES

0 10 20 30
HORIZONTAL SCALE IN FEET

0 10 20 30
VERTICAL SCALE IN FEET

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 38.dwg
DATE CHECKED: 8/4/2021

AUXILIARY SPILLWAY PROFILE

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 38
OF 83

REVISIONS		
DATE	APPROVED	TITLE

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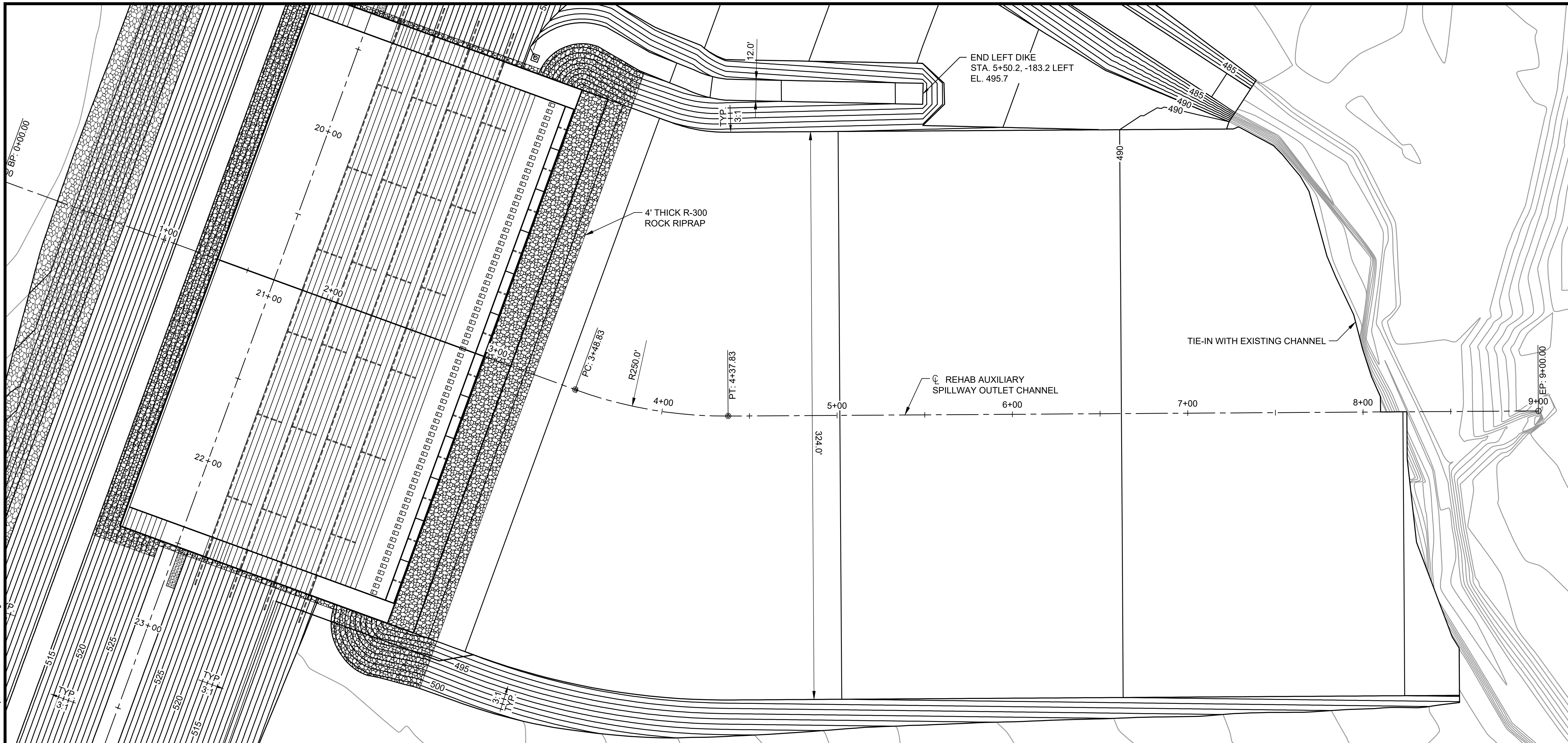
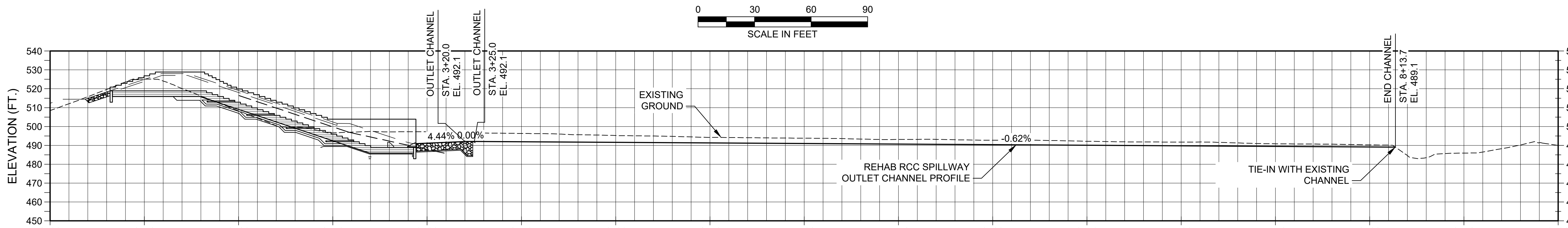


REHAB AUXILIARY SPILLWAY OUTLET CHANNEL PLAN

0 30 60 90
SCALE IN FEET



NOTES:

1. REFER TO SHEETS 46, 47, AND 48 FOR OUTLET CHANNEL SECTIONS.

REHAB AUXILIARY SPILLWAY OUTLET CHANNEL PROFILE

0 30 60 90
SCALE IN FEET

REVISIONS		
DATE	APPROVED	TITLE

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STATE OF TEXAS
LANCE T. FINNEFROCK
111386
LICENSED PROFESSIONAL ENGINEER
8/4/21

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 - Sht 39.dwg
DATE CHECKED: 8/4/2021

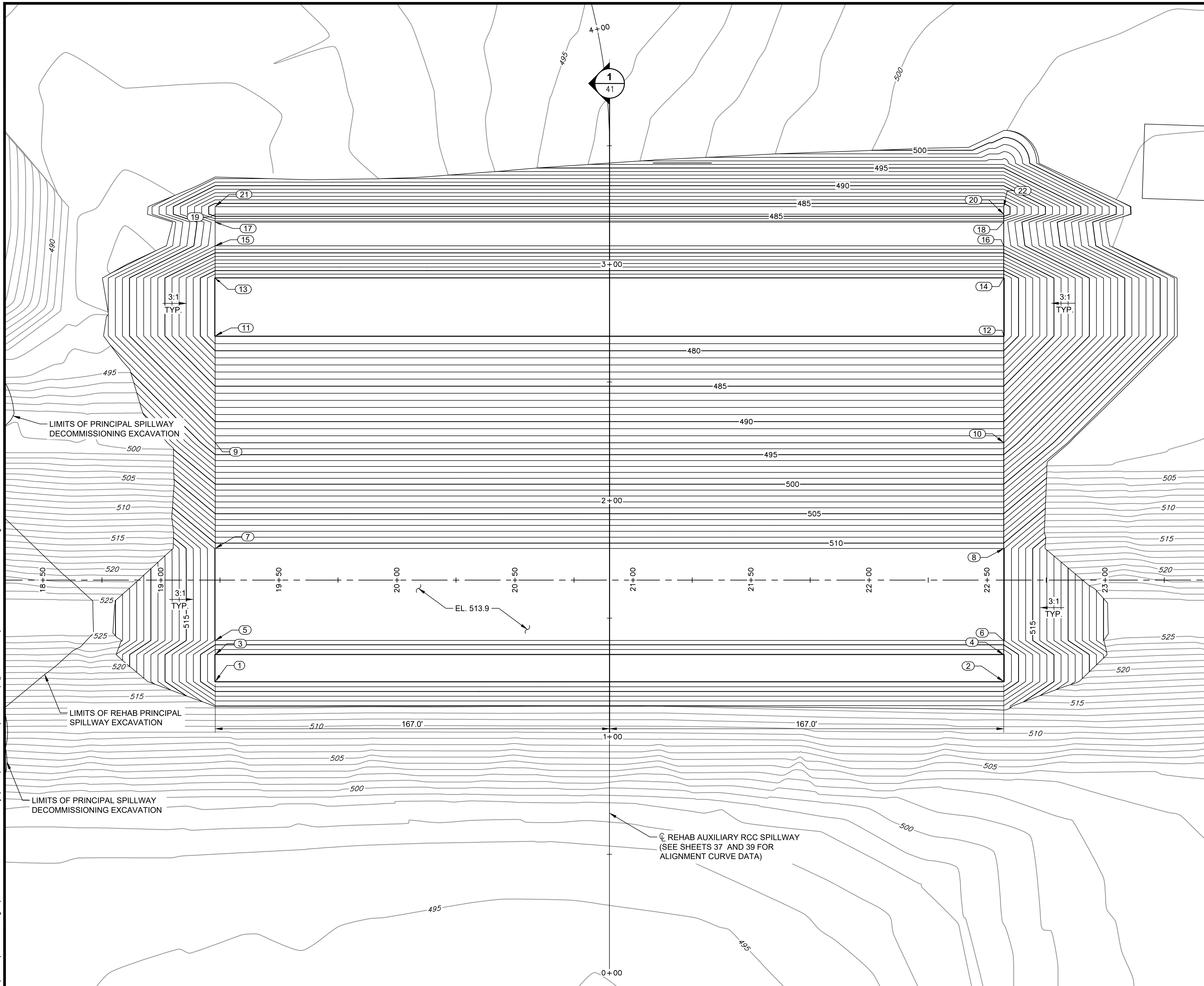
AUXILIARY SPILLWAY OUTLET CHANNEL PLAN AND PROFILE

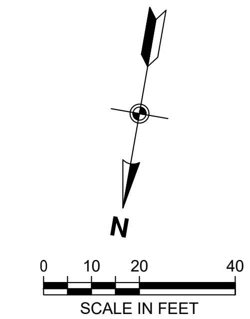
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX-EN-0754

SHEET NO. 39 OF 83





EXCAVATION POINT TABLE

Point #	Northing	Easting	Elevation
1	13898055.3	2394523.9	507.9
2	13897997.5	2394194.9	507.9
3	13898044.1	2394525.9	507.9
4	13897986.3	2394196.9	507.9
5	13898038.2	2394526.9	510.9
6	13897980.4	2394197.9	510.9
7	13897999.8	2394533.7	510.9
8	13897942.0	2394204.7	510.9
9	13897955.7	2394541.4	493.0
10	13897897.9	2394212.4	493.0
11	13897911.2	2394549.3	477.9
12	13897853.4	2394220.3	477.9
13	13897887.0	2394553.5	477.9
14	13897829.2	2394224.5	477.9
15	13897873.6	2394555.9	487.0
16	13897815.8	2394226.9	487.0
17	13897863.7	2394557.6	487.4
18	13897805.9	2394228.6	487.4
19	13897860.4	2394558.2	484.1
20	13897802.6	2394229.2	484.1
21	13897857.3	2394558.8	484.1
22	13897799.6	2394229.7	484.1

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 38–41.dwg
DATE CHECKED: 8/4/2021

AUXILIARY SPILLWAY OVEREXCAVATION PLAN

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 40
OF 83

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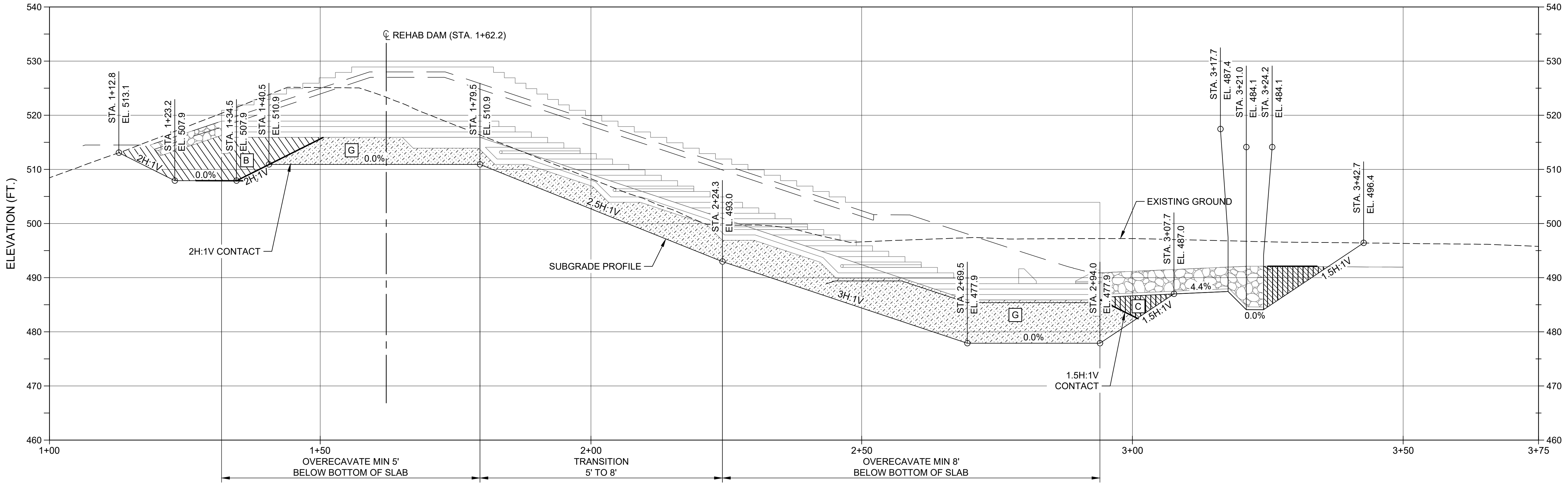

1
40
AUXILIARY SPILLWAY CENTERLINE EXCAVATION SECTION

0 5 10 20
SCALE IN FEET

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CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 38-41.dwg
DATE CHECKED: 8/4/2021

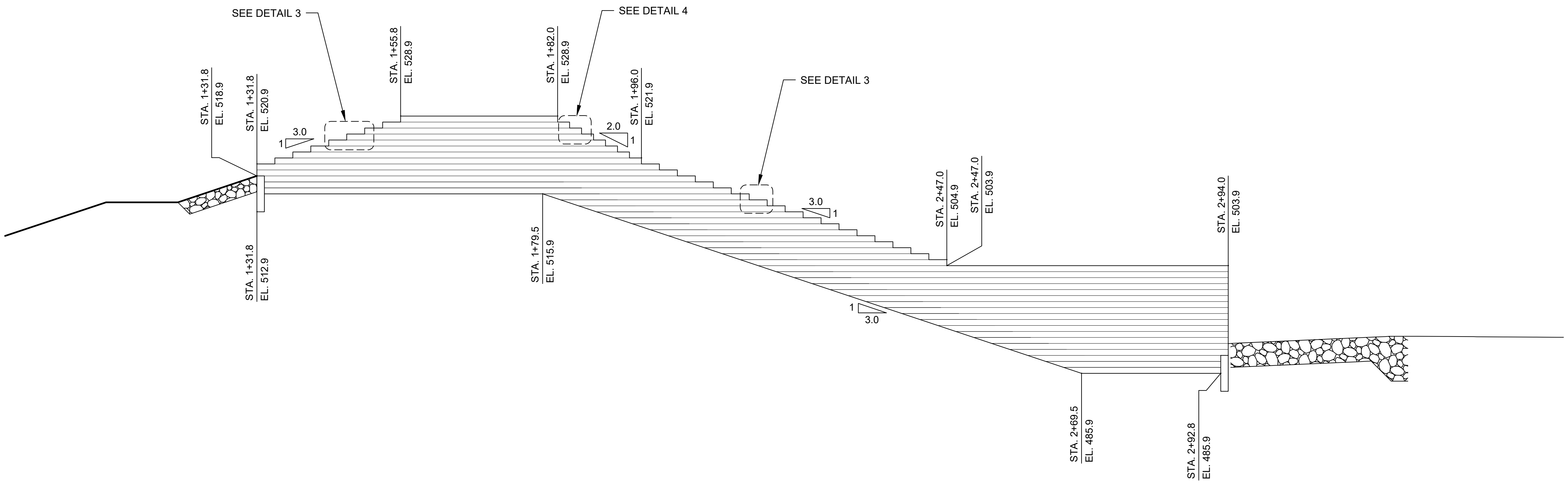
AUXILIARY SPILLWAY OVEREXCAVATION SECTIONS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

REVISIONS		
DATE	APPROVED	TITLE

DRAWING NO. TX-EN-0754
SHEET NO. 41
OF 83



2 / **37** **RCC SIDE WALL SECTION**

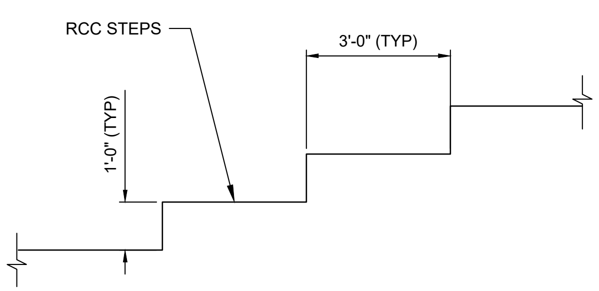
SCALE: 1" = 10'

0 10 20 30 HORIZONTAL SCALE IN FEET

0 10 20 30 VERTICAL SCALE IN FEET

NOTES:

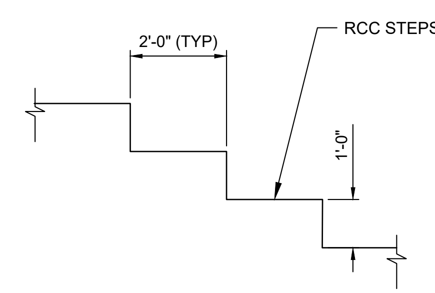
1. DRAINS NOT SHOWN FOR CLARITY.



3 / **42** **DETAIL**

SCALE: 1/2"=1'-0"

STA 1+31.8 TO STA 1+55.8 AND
1+96.0 TO STA 2+47.0



4 / **42** **DETAIL**

SCALE: 1/2"=1'-0"

STA 1+82.0 TO STA 1+96.0

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 42.dwg
DATE CHECKED: 8/4/2021

AUXILIARY SPILLWAY SECTIONS AND DETAILS (1 OF 4)

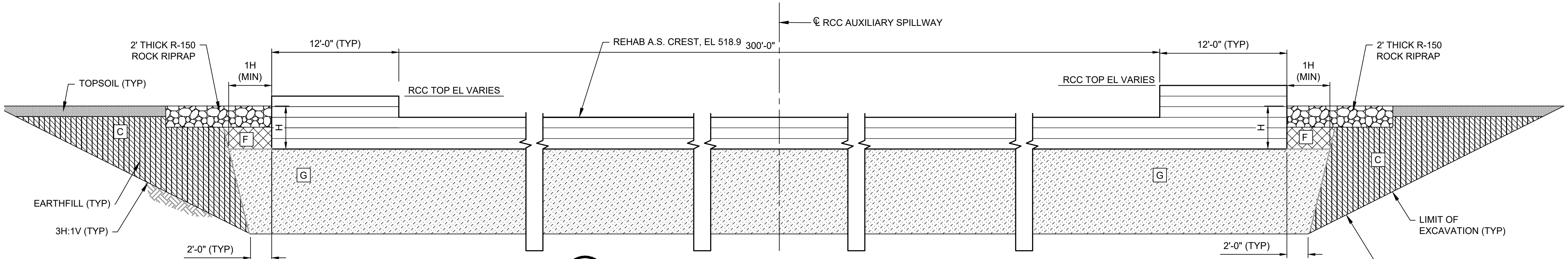
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754

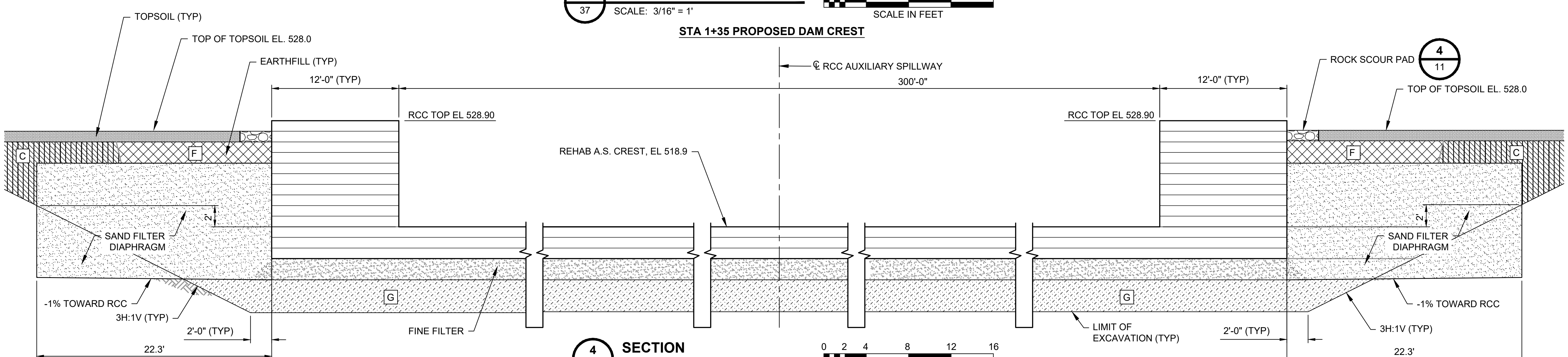
SHEET NO. 42

OF 83



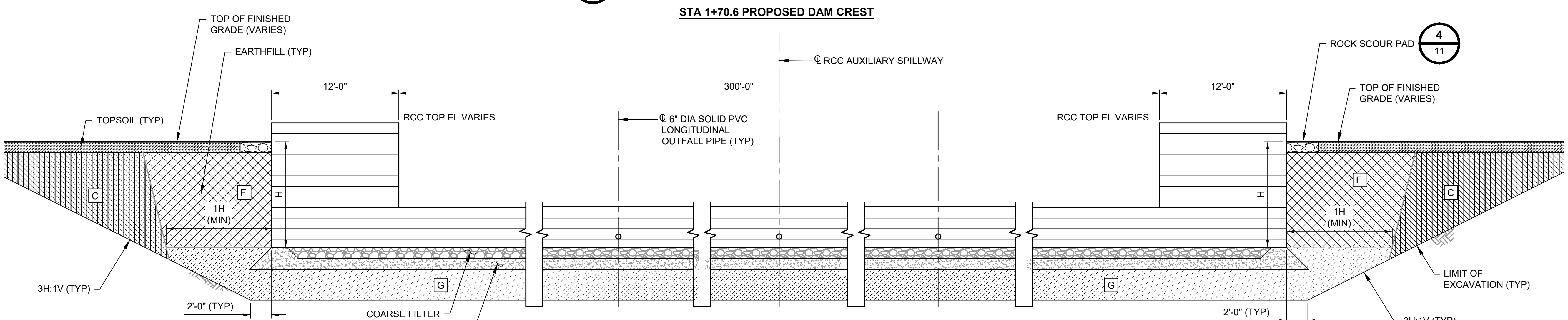
3/37 SECTION
SCALE: 3/16" = 1'
0 2 4 8 12 16
SCALE IN FEET

STA 1+35 PROPOSED DAM CREST



4/37 SECTION
SCALE: 3/16" = 1'
0 2 4 8 12 16
SCALE IN FEET

STA 1+70.6 PROPOSED DAM CREST



5/37 SECTION
SCALE: 3/16" = 1'
0 2 4 8 12 16
SCALE IN FEET

STA 1+91 THROUGH THE LONGITUDINAL OUTFALL PIPE

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 43.dwg
DATE CHECKED: 8/4/2021

AUXILIARY SPILLWAY SECTIONS AND DETAILS (2 OF 4)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 43 OF 83

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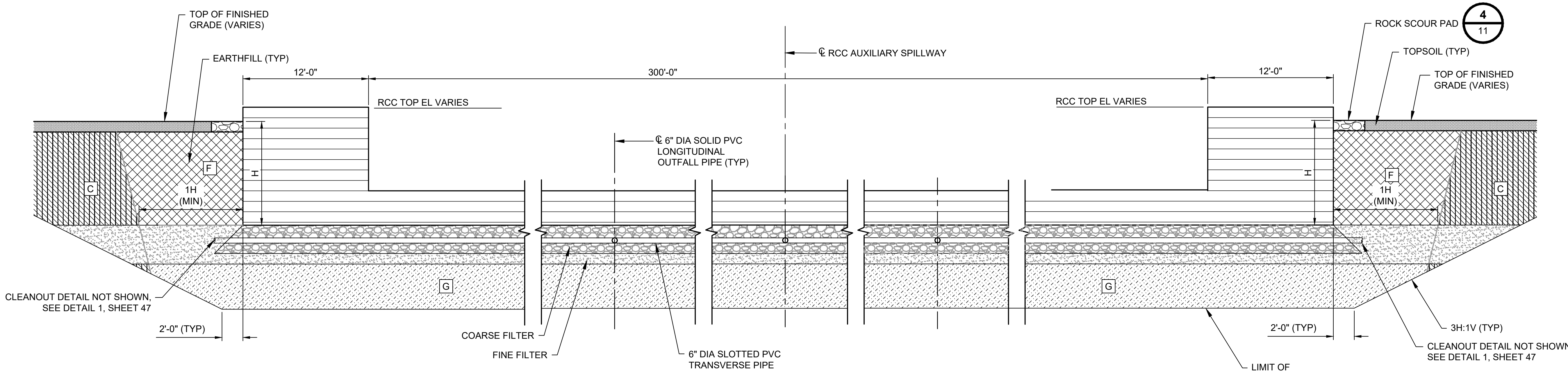
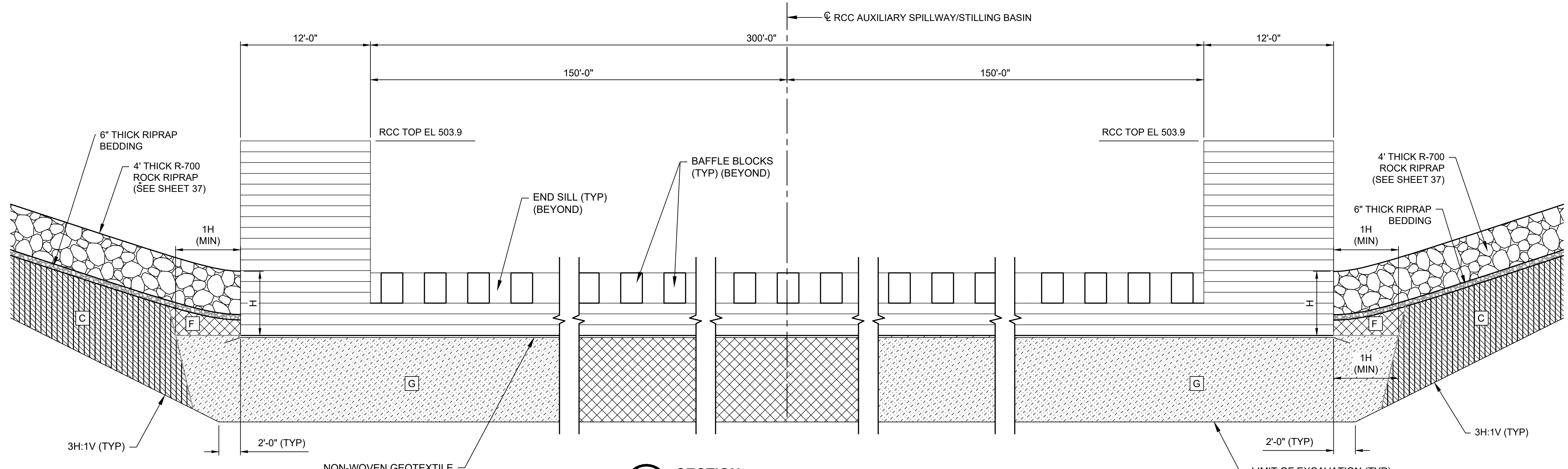


6
37
SECTION
SCALE: 3/16" = 1'
0 2 4 8 12 16
SCALE IN FEET

STA 2+25 THROUGH THE CENTERLINE TRANSVERSE DRAIN PIPE



7
37
SECTION
SCALE: 3/16" = 1'
0 2 4 8 12 16
SCALE IN FEET

STA 2+91 - STILLING BASIN

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CHECKED BY: TEA
FILE NAME: Plum 21 - Sht 44.dwg
DATE CHECKED: 8/4/2021

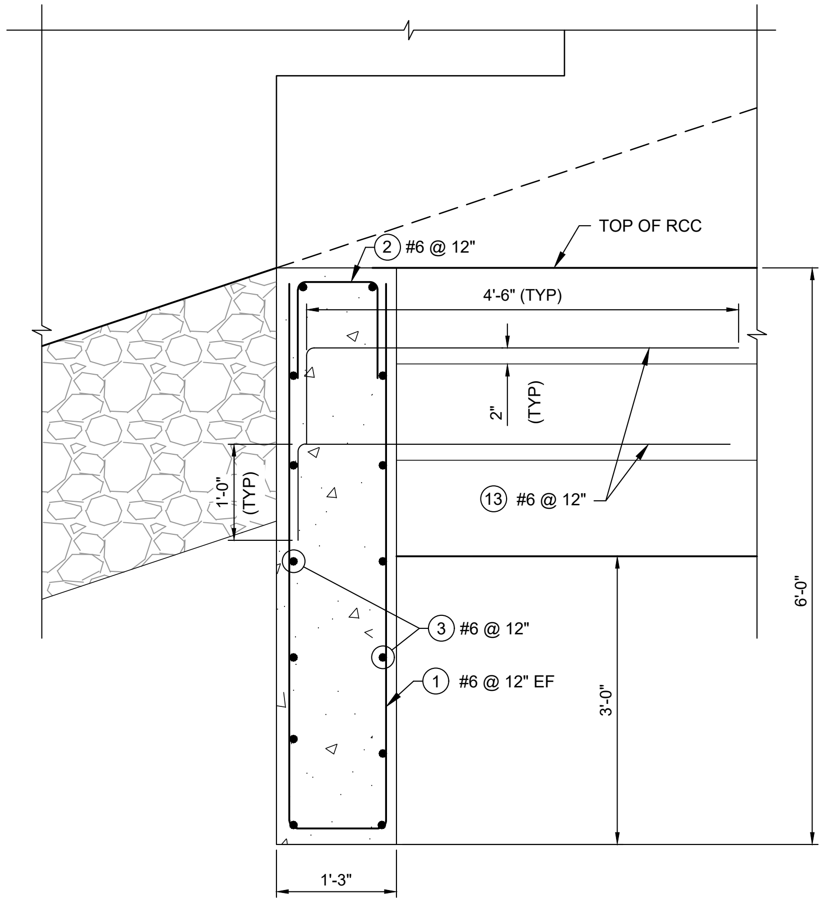
AUXILIARY SPILLWAY SECTIONS AND DETAILS (3 OF 4)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
USDA
Natural Resources Conservation Service

DRAWING NO.
TX-EN-0754
SHEET NO.
44
OF
83

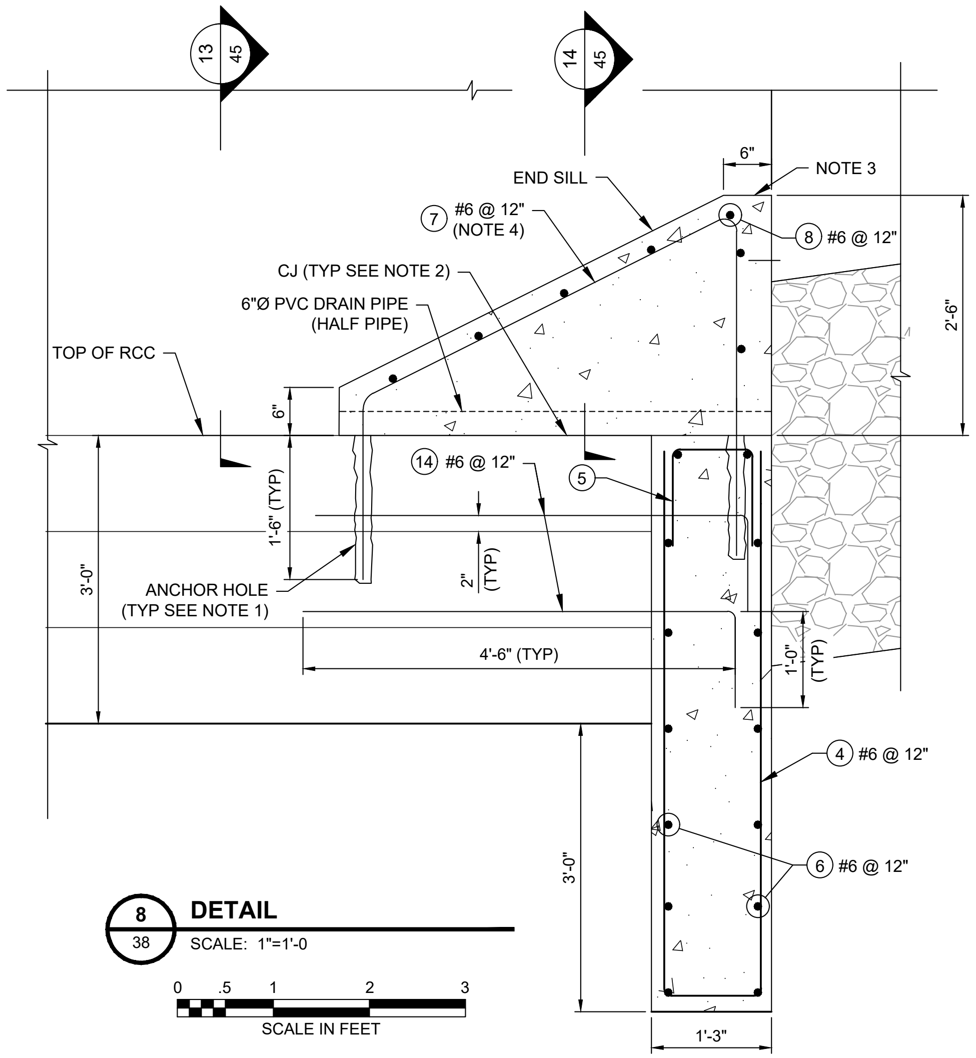
REVISIONS		
DATE	APPROVED	TITLE



7 / 38 **DETAIL**

SCALE: 1"=1'=0"

0 .5 1 2 3 SCALE IN FEET



8 / 38 **DETAIL**

SCALE: 1"=1'-0

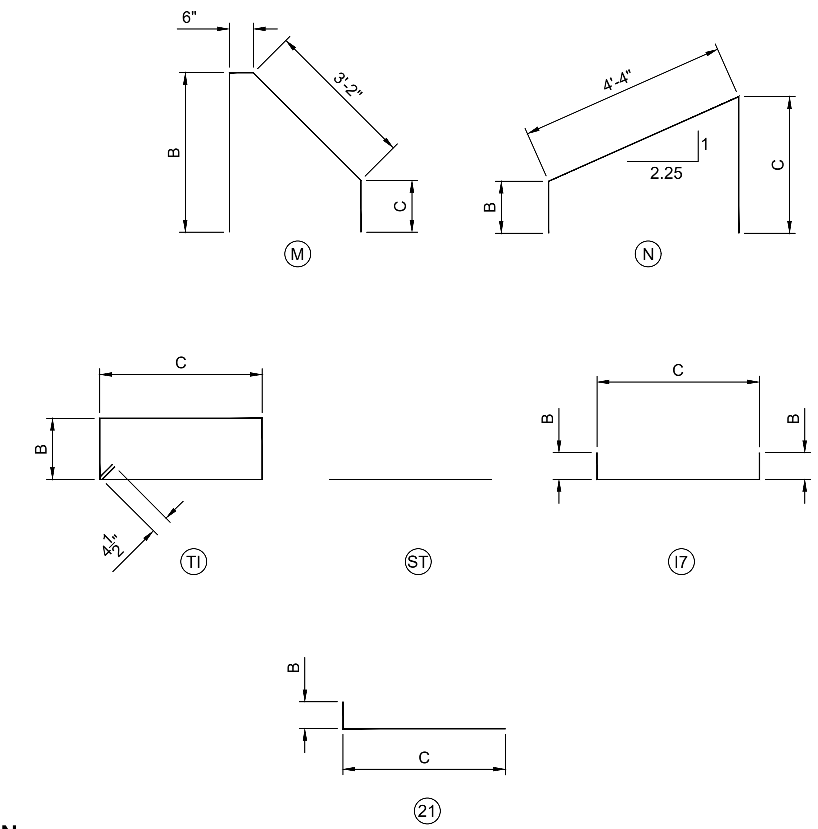
0 .5 1 2 3 SCALE IN FEET

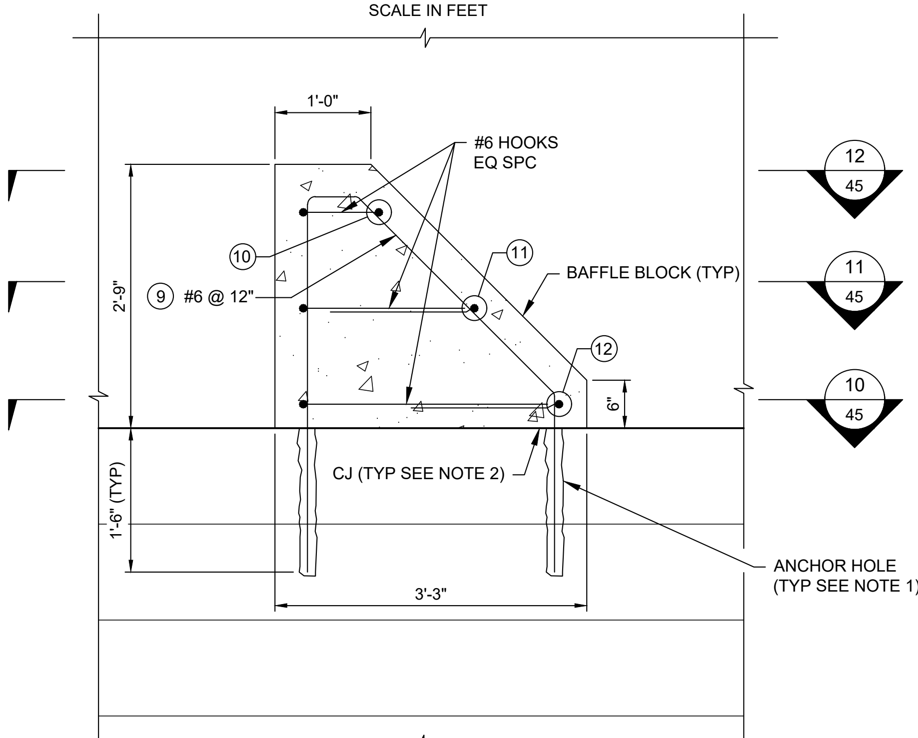
NOTES:

1. DRILL ALL ANCHOR HOLES TO 1"Ø. USE CEMENT GROUT TO FILL ANNULAR SPACE BETWEEN ANCHOR AND ANCHOR HOLE.
2. PREPARE THE RCC FOR CONSTRUCTION JOINT BETWEEN BAFFLE BLOCKS AND END SILL.
3. CONTRACTION JOINTS SPACED AT MAXIMUM OF 25'-0" ALONG THE LENGTH OF THE ENDSILL.
4. IT SHALL BE PERMISSABLE TO ANCHOR BAR MARK 7 INTO THE STILLING BASIN AT 24" OC TO REDUCE THE AMOUNT OF EMBEDDED REINFORCMENT FROM THE END SILL. THE REINFORCEMENT AT 12" OC FOR THE MINIMUM REINFORCEMENT IS STILL REQUIRED AND MAY BE TRIMMED 2" ABOVE THE TOP OF THE STILLING BASIN SLAB IN BETWEEN THE EMBEDDED BARS.

Reinforcing Steel Schedule

Mark	Size (Bar #)	Quantity	Type	B (ft)	-	B (in)	C (ft)	-	C (in)	Length (ft)	-	Length (in)	Total Length (ft)	-	Total Length (in)
1	6	300	17	5	-	8	1	-	1	12	-	5	3725	-	0
2	6	300	17	1	-	6	1	-	1	4	-	1	1225	-	0
3	6	168	ST		-			-		22	-	0	3696	-	0
4	6	300	17	8	-	2	1	-	1	17	-	5	3725	-	6
5	6	300	17	1	-	6	1	-	1	4	-	1	1225	-	6
6	6	168	ST		-			-		22	-	0	3696	-	0
7	6	420	21	1	-	3	5	-	6	6	-	9	2835	-	0
8	6	168	ST		-			-		14	-	4	2408	-	0
9	6	225	M	4	-	3	1	-	9	9	-	8	2175	-	0
10	6	150	T1	0	-	8	1	-	8	2	-	4	350	-	0
11	6	150	T1	1	-	8	1	-	10	3	-	6	525	-	0
12	6	150	T1	1	-	8	2	-	11	4	-	7	687	-	0
13	6	300	21	1	-	0	4	-	6	5	-	6	1650	-	0
14	6	300	21	1	-	0	4	-	6	5	-	6	1650	-	0
												Total	29572	-	0

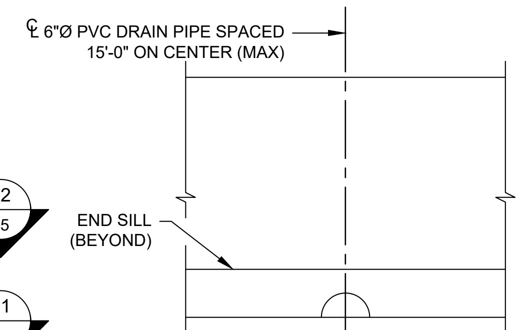




9 / 38 **DETAIL**

SCALE: 1"=1'-0"

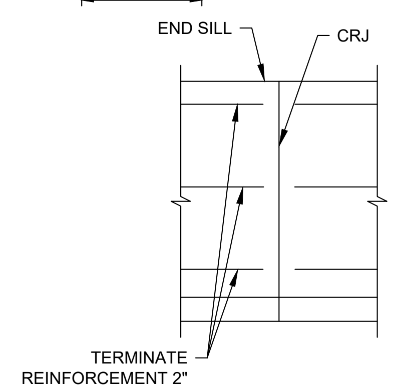
0 .5 1 2 3 SCALE IN FEET



13 / 45 **SECTION**

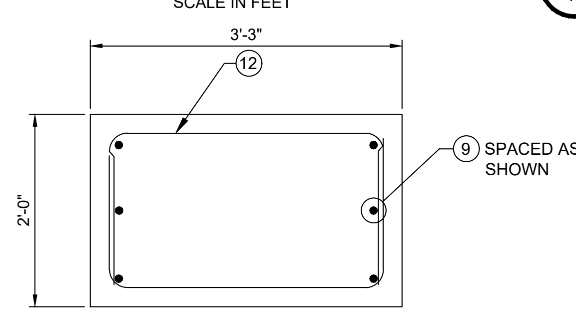
SCALE: 1"=1'-0"

0 .5 1 2 3 SCALE IN FEET



14 / 45 **CONTRACTION JOINT SECTION**

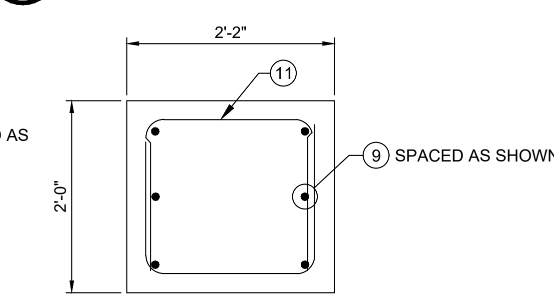
SCALE: 1"=1'-0"



10 / 45 **SECTION**

SCALE: 1"=1'-0"

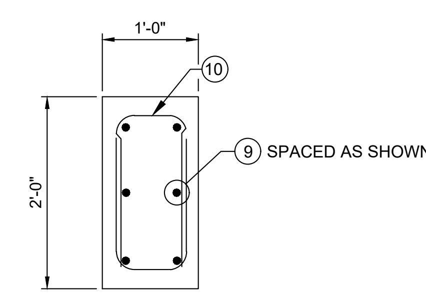
0 .5 1 2 3 SCALE IN FEET



11 / 45 **SECTION**

SCALE: 1"=1'-0"

0 .5 1 2 3 SCALE IN FEET



12 / 45 **SECTION**

SCALE: 1"=1'-0"

0 .5 1 2 3 SCALE IN FEET

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: KNF
DRAWN BY: CAD
CHECKED BY: SS
FILE NAME: Plum 21 – Sht 45.dwg
DATE CHECKED: 8/4/2021

AUXILIARY SPILLWAY SECTIONS AND DETAILS (4 OF 4)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture

Natural Resources Conservation Service

DRAWING NO. TX-EN-0754

SHEET NO. 45

OF 83

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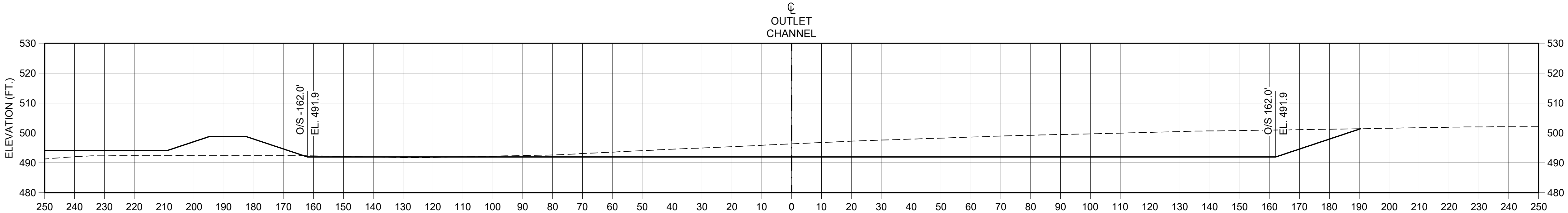
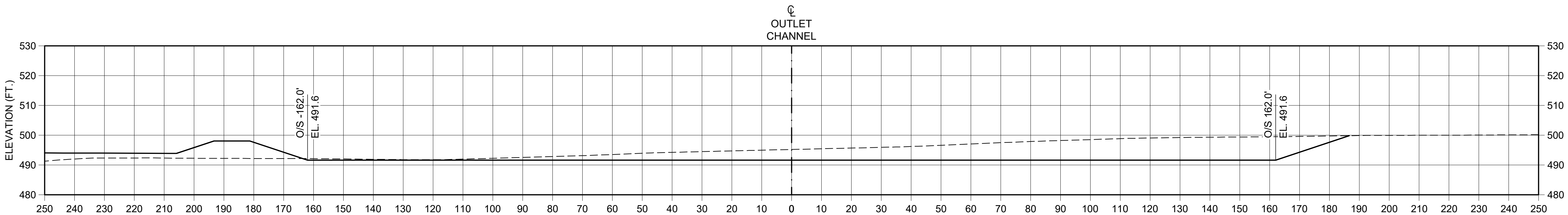
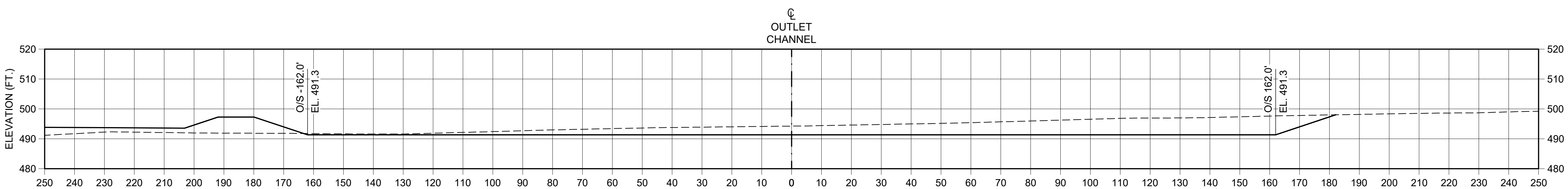


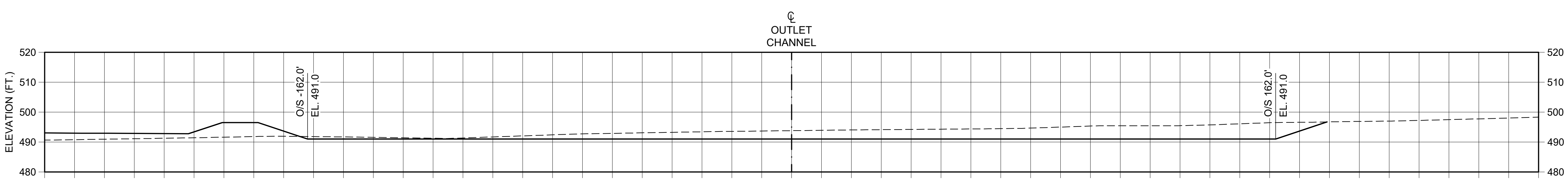
STA. 3+50.00



STA. 4+00.00



STA. 4+50.00



STA. 5+00.00

0 10 20 40
SCALE IN FEET (H & V)

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 12_48.dwg
DATE CHECKED: 8/4/2021

AS OUTLET CHANNEL CROSS–SECTIONS (1 OF 3)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 46
OF 83

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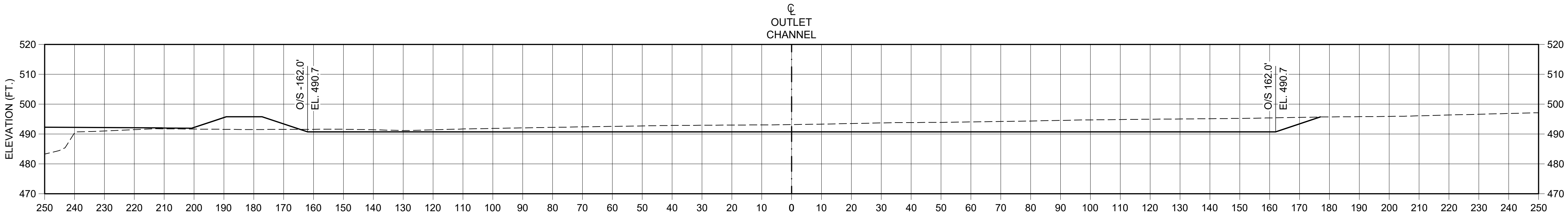
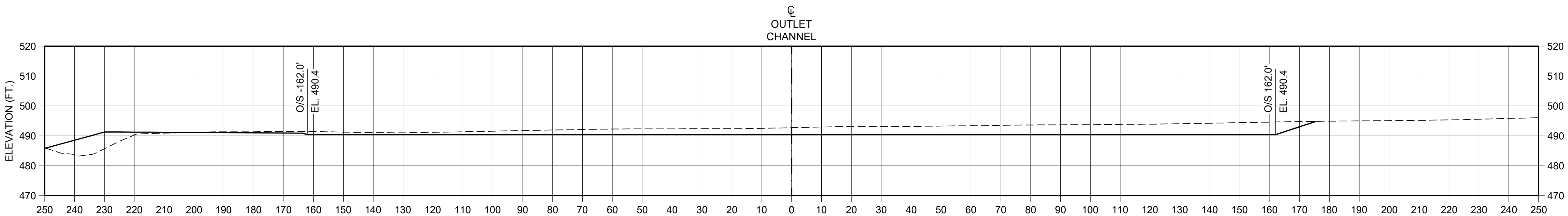
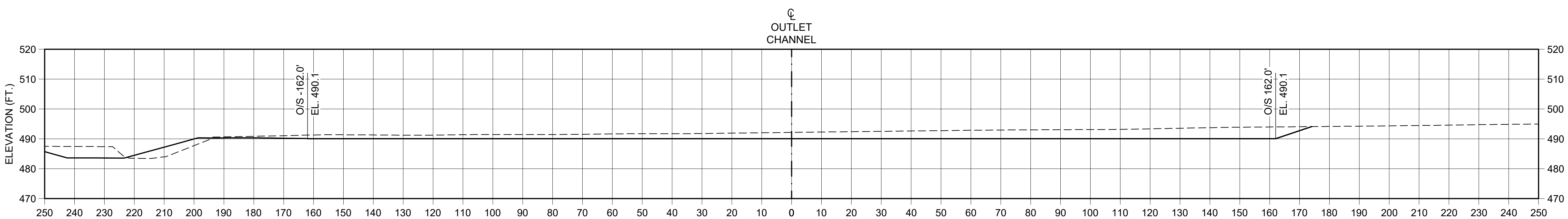


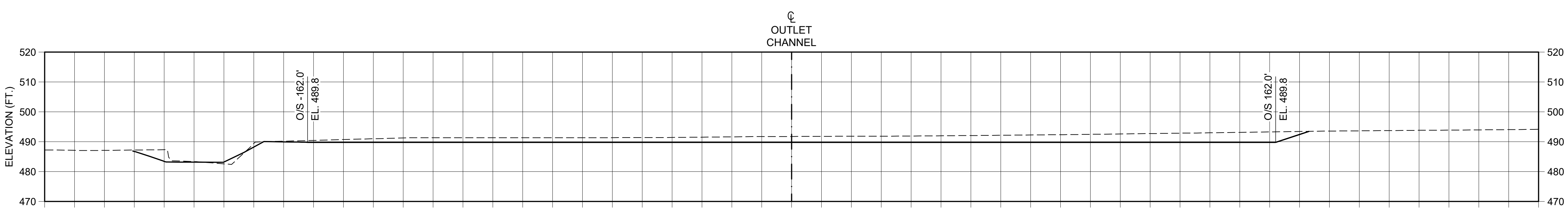
STA. 5+50.00



STA. 6+00.00



STA. 6+50.00



STA. 7+00.00

0 10 20 40
SCALE IN FEET (H & V)

REVISIONS		
DATE	APPROVED	TITLE

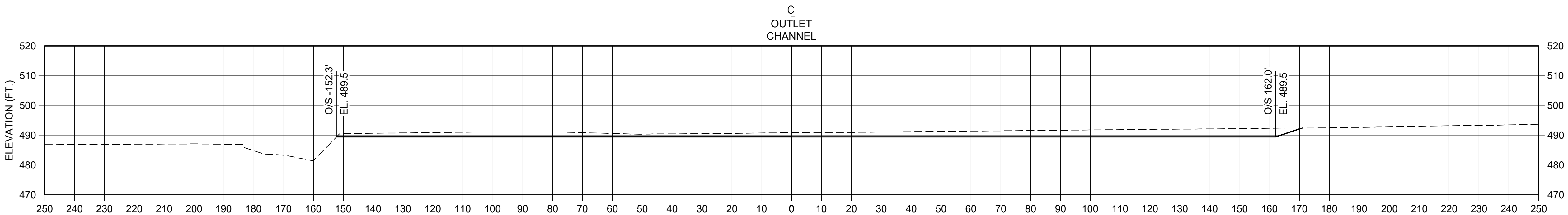
DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 - Sht 12_48.dwg
DATE CHECKED: 8/4/2021

AS OUTLET CHANNEL CROSS-SECTIONS (2 OF 3)

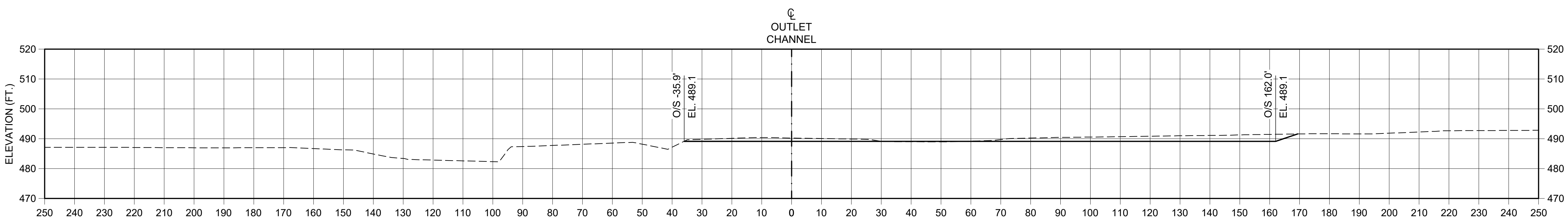
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

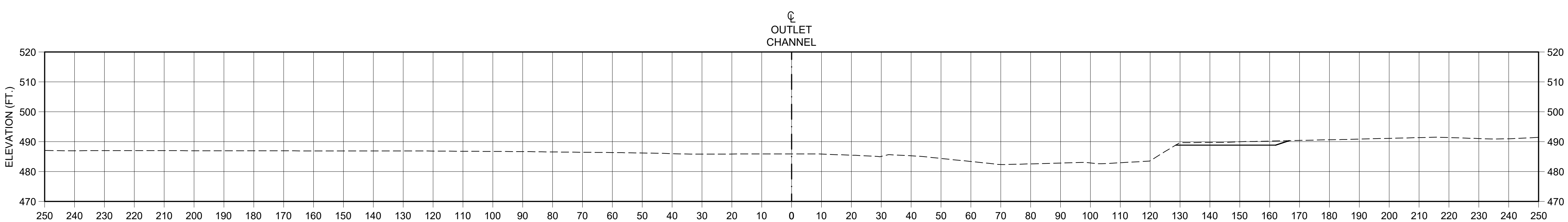
DRAWING NO. TX-EN-0754
SHEET NO. 47
OF 83



STA. 7+50.00



STA. 8+00.00



STA. 8+50.00

0 10 20 40
SCALE IN FEET (H & V)

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 12_48.dwg
DATE CHECKED: 8/4/2021

AS OUTLET CHANNEL CROSS–SECTIONS (3 OF 3)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO.
TX–EN–0754

SHEET NO.
48
OF
83

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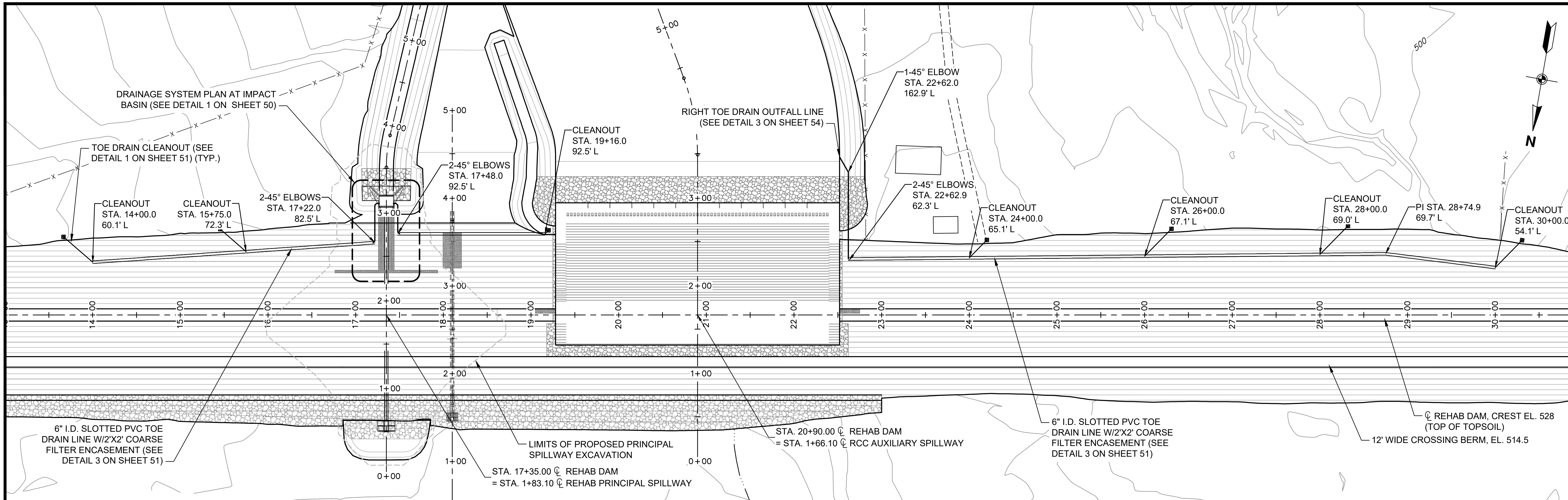
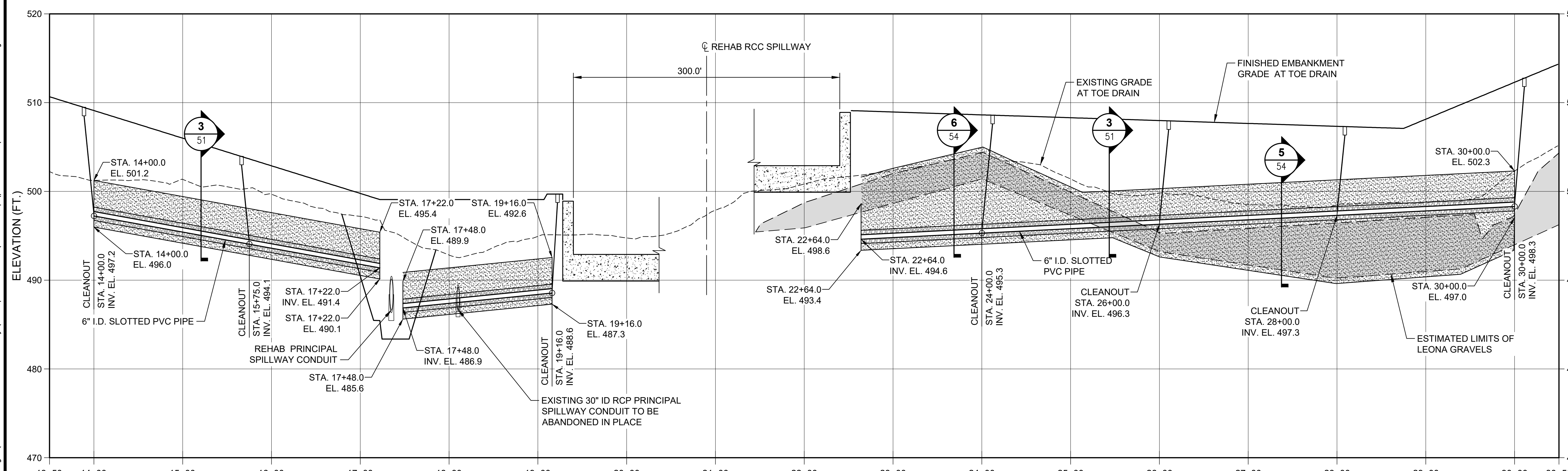


TOE DRAIN PLAN

0 30 60 120
SCALE IN FEET



TOE DRAIN PROFILE

0 30 60 120
HORIZ. SCALE IN FEET

0 3 6 12
VERT. SCALE IN FEET

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LANCE T. PINNEROCK 113998 PROFESSIONAL ENGINEER STATE OF TEXAS 8/4/21

DESIGNED BY:	LTF
DRAWN BY:	MDE
CHECKED BY:	TEA
FILE NAME:	Plum 21 – Sht 49.dwg
DATE CHECKED:	8/4/2021

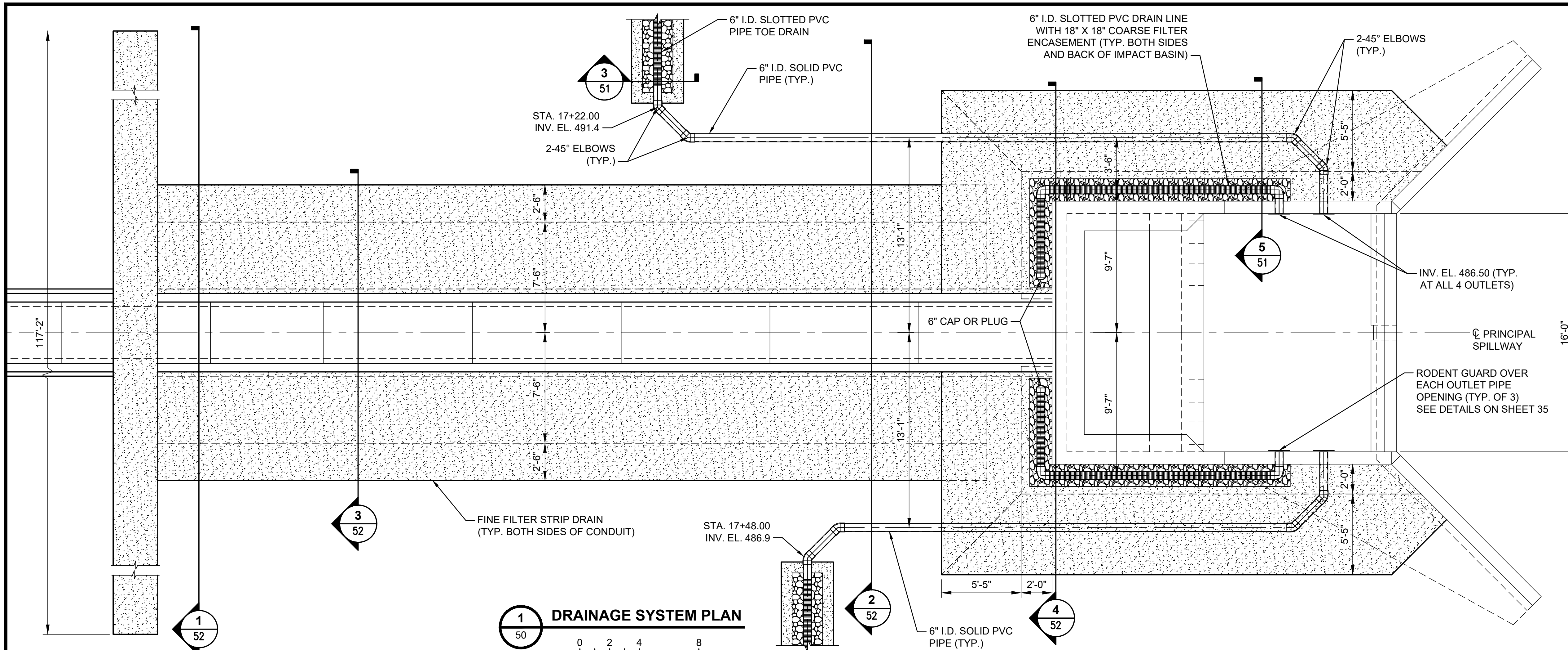
TOE DRAIN PLAN & PROFILE

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

REVISIONS		
DATE	APPROVED	TITLE

DRAWING NO. TX–EN–0754
SHEET NO. 49
OF 83



1
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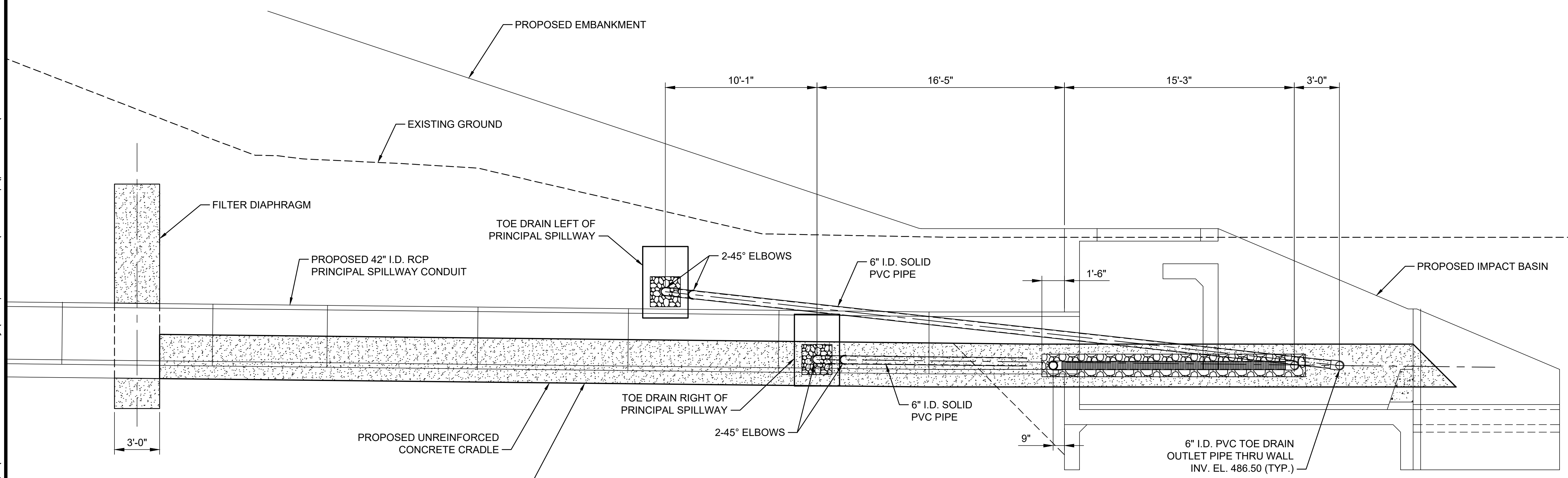
DRAINAGE SYSTEM PLAN

0 2 4 8
SCALE IN FEET



2
50
DRAINAGE SYSTEM ELEVATION

0 2 4 8
SCALE IN FEET

REVISIONS		
DATE	APPROVED	TITLE

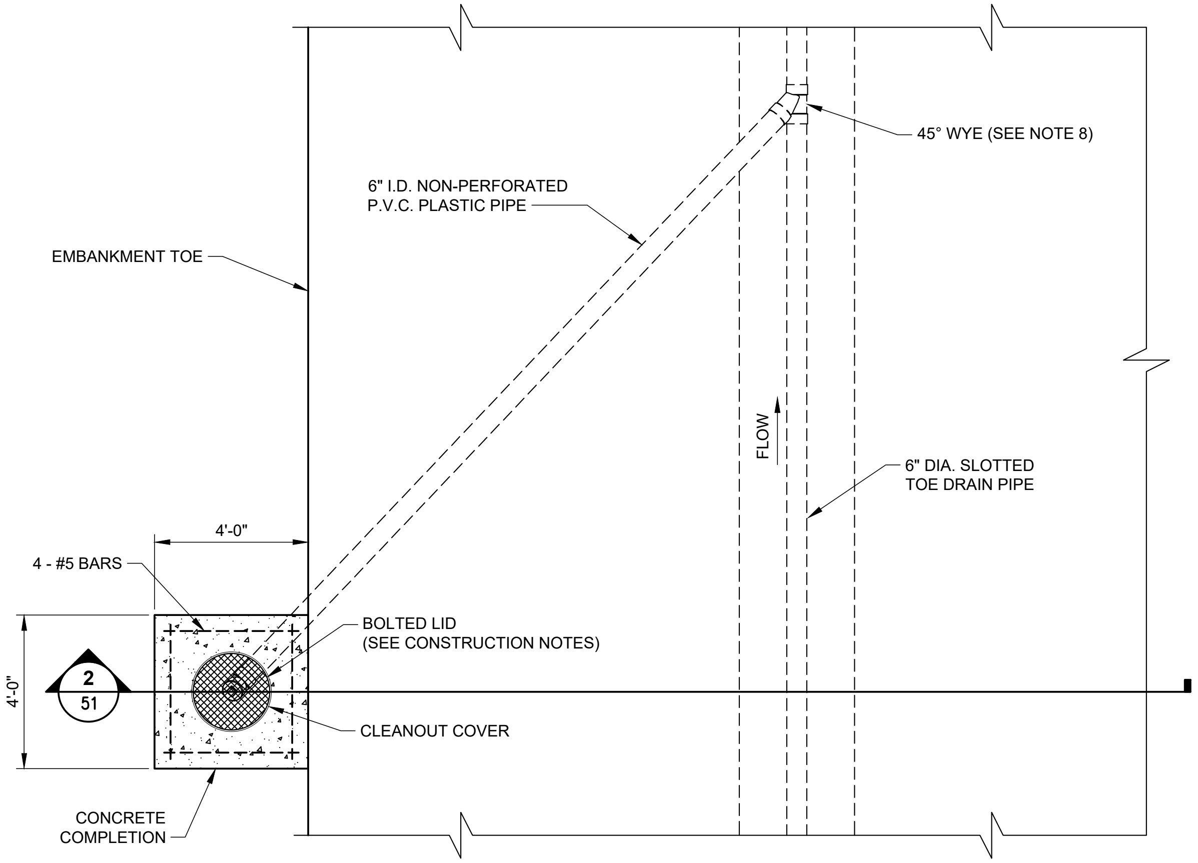
DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 50–54.dwg
DATE CHECKED: 8/4/2021

DRAINAGE SYSTEM DETAILS (1 OF 5)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 50
OF 83



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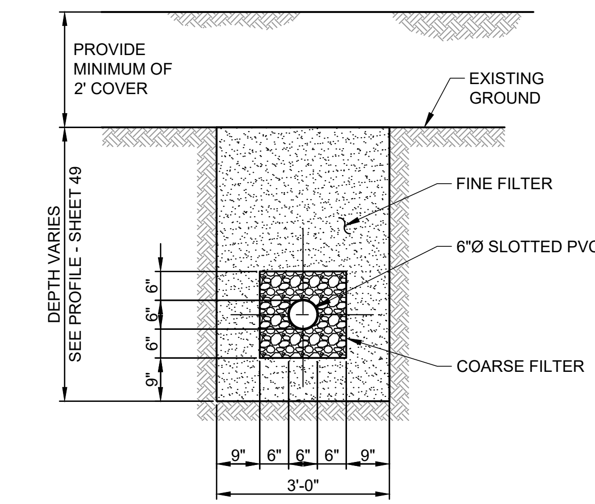
TYP TRENCH DRAIN CLEANOUT DETAIL
NTS



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TYPICAL REHAB TOE DRAIN DETAIL
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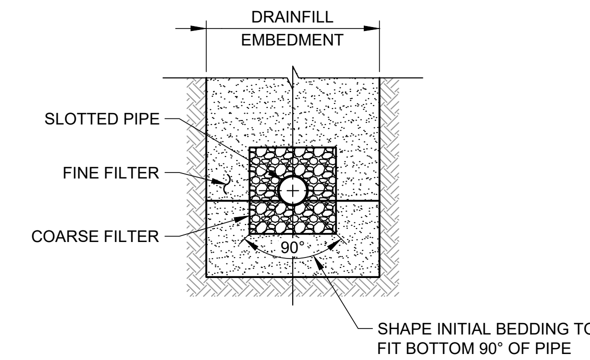

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DRAIN PIPE BEDDING DETAILS - DRAINFILL
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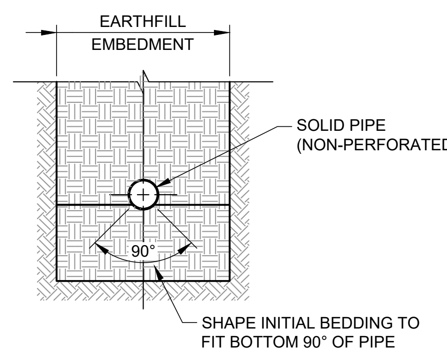

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DRAIN PIPE BEDDING DETAIL - EARTHFILL
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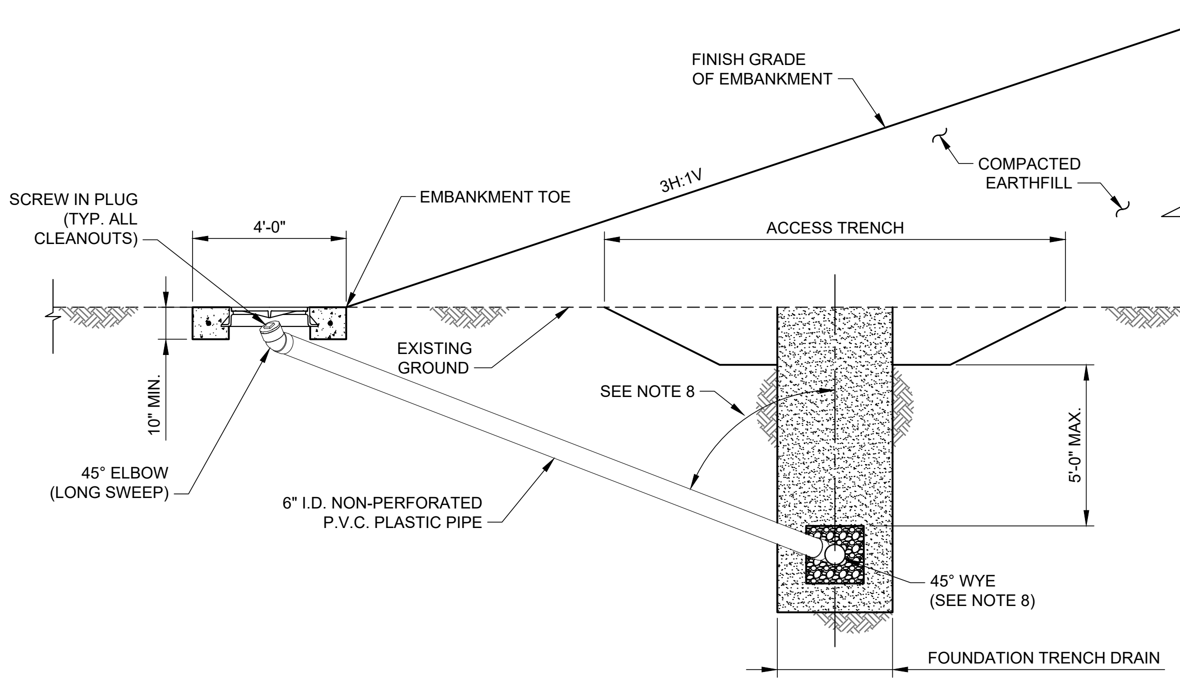
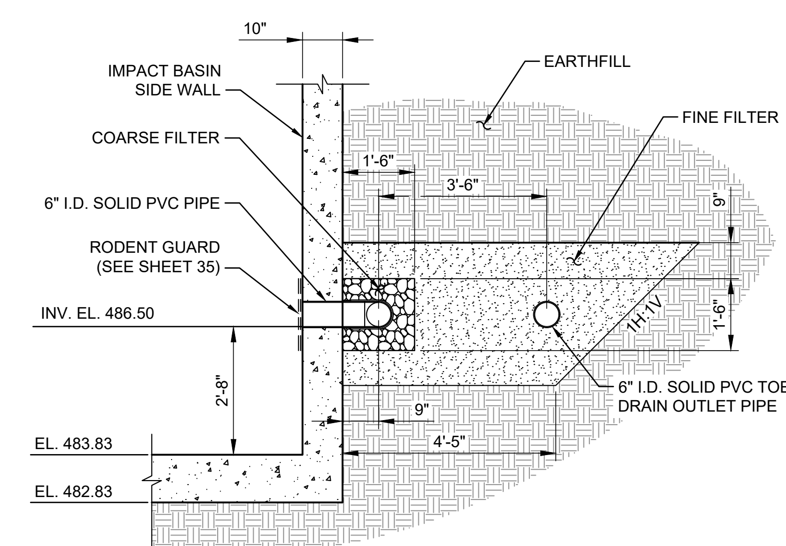


2
51
TYP TRENCH DRAIN CLEANOUT SECTION
NTS

CLEANOUT CONSTRUCTION NOTES:

1. CLEANOUT COVERS SHALL BE NEENAH FOUNDRY COMPANY R-1478-EB WITH BOLTED AND GASKETED LID OR EQUIVALENT AS APPROVED BY THE ENGINEER.
2. ALL BOLTING HARDWARE SHALL CONSIST OF STAINLESS STEEL WASHERS, LOCK WASHERS, AND HEX HEAD BOLTS.
3. THE CONCRETE COMPLETION SHALL HAVE A MIX OF 5 1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
4. FINISHED GRADE OF THE CONCRETE AND CLEANOUT COVER SHALL EXTEND NO MORE THAN 0.1' ABOVE THE SURROUNDING TOPOGRAPHY (TYP. ALL FOUR SIDES).
5. CLEANOUT COVERS SHALL BE ORIENTED TO PREVENT PONDING OF WATER.
6. CONCRETE THICKNESS SHALL BE A MINIMUM OF 10" THICK ENOUGH TO FULLY ENCASE THE CAST IRON CLEANOUT COVER.
7. THE AREA SURROUNDING THE COVERS SHALL BE GRADED AND DRESSED TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE COVERS.
8. THE 45° WYE FOR THE TRENCH DRAIN CLEANOUTS SHALL BE ROTATED/ORIENTED ABOUT THE SLOTTED PIPE TO ALLOW THE CLEANOUTS TO BE INSTALLED BEYOND THE TOE OF THE EMBANKMENT AS SHOWN. FINAL LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
9. THE 6" NON-PERFORATED P.V.C. LOCATED BETWEEN THE 45° WYE AND THE 45° LONG SWEEP ELBOW FOR THE CHIMNEY DRAIN/R.C.C. DRAIN CLEANOUTS SHALL BE FIELD FIT TO ENSURE THE VERTICAL CLEANOUT SECTION OF 6" NON-PERFORATED P.V.C. PIPE EXTENDS TO THE CENTER OF THE CLEANOUT COVER.
10. THE CLEANOUT COVER FOR THE CHIMNEY DRAIN AND R.C.C. DRAINAGE SYSTEM SHALL BE CONSTRUCTED ADJACENT TO TO THE R.C.C. SIDEWALLS AT ELEVATION CORRESPONDING TO THE R.C.C. STEP ELEVATION AS SHOWN.



6
51
DRAIN AND FILTER SECTION

REVISIONS		
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DESIGNED BY: LTF
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FILE NAME: Plum 21 – Sht 50–54.dwg
DATE CHECKED: 8/4/2021

DRAINAGE SYSTEM DETAILS (2 OF 5)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO.
TX–EN–0754
SHEET NO.
51
OF
83

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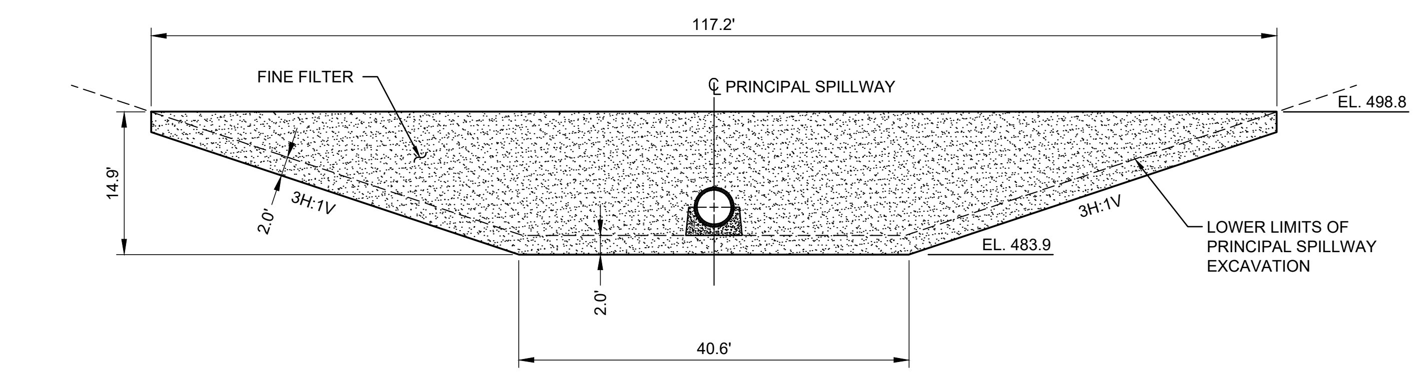
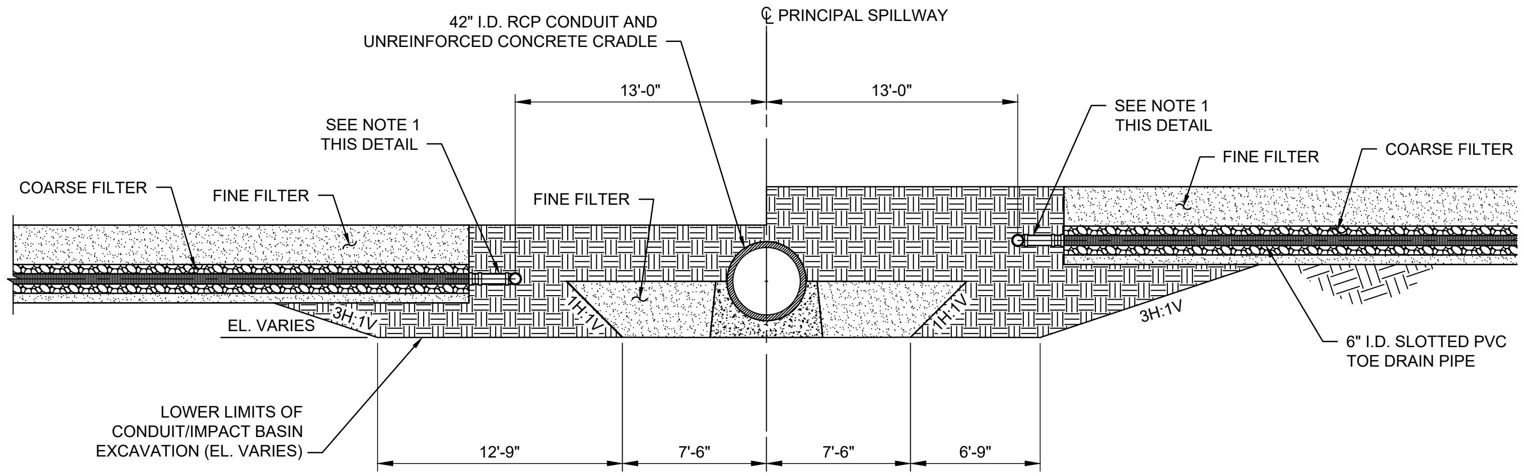
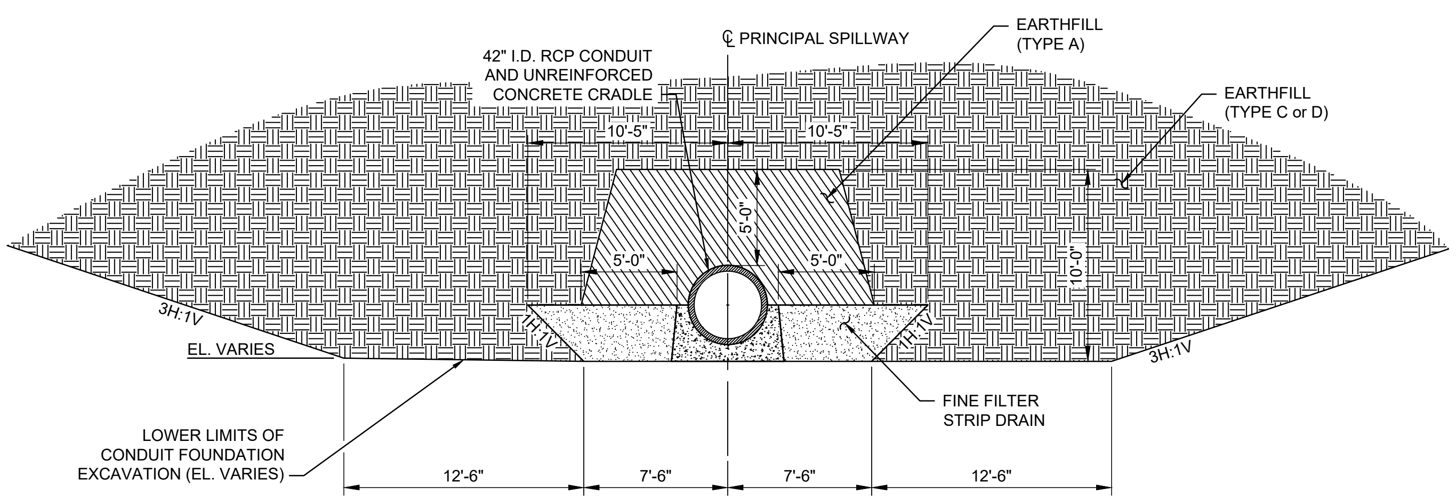


1/50 FILTER DIAPHRAGM SECTION
NTS

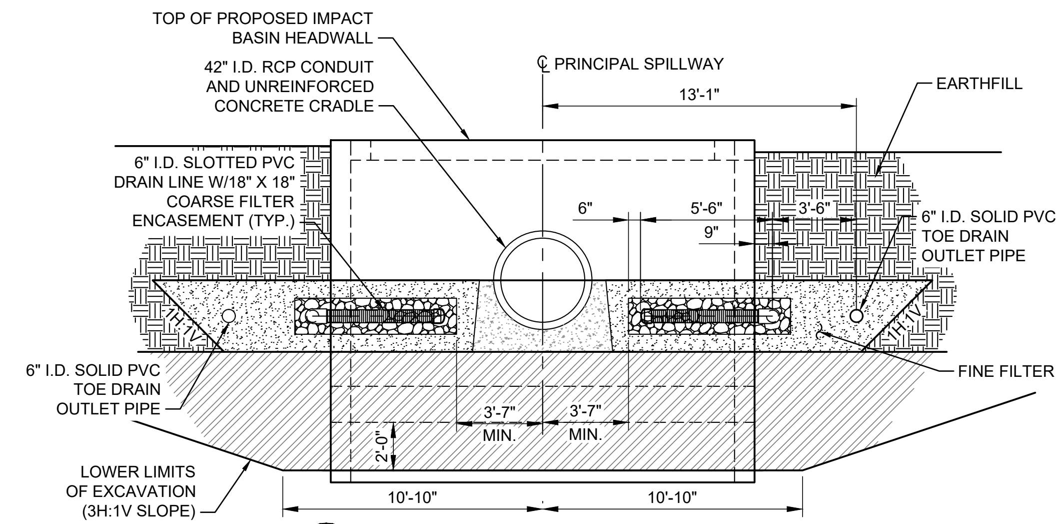


NOTES:
1. TRANSITION FROM 6" DIA. SLOTTED PIPE TO 6" DIA. SOLID PIPE AT STRIP DRAIN SHOULD INCLUDE TWO 45° BENDS WITH 2' MIN. LENGTH OF STRAIGHT PIPE BETWEEN BENDS.

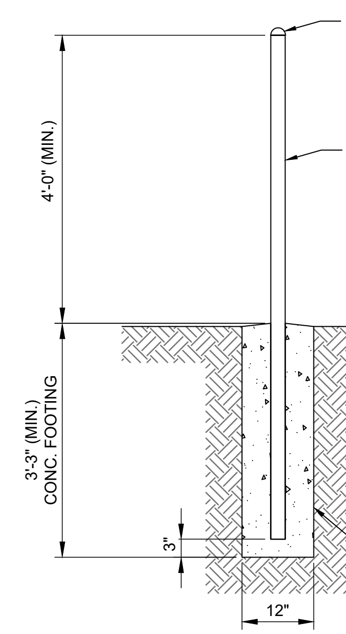
2/50 TOE DRAINS AT STRIP DRAIN DETAIL
NTS



4/50 STRIP DRAIN TYPICAL SECTION
NTS

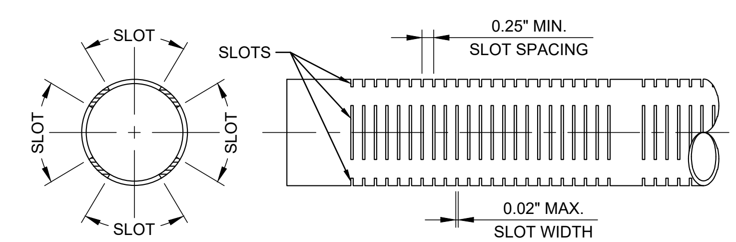


4/50 DRAINAGE SYSTEM SECTION
NTS



NOTES:
1. PAINT BOLLARD WITH BRIGHT YELLOW "HAMMERITE RUST CAP" SMOOTH ENAMEL FINISH, SELF-PRIMING, RUST PREVENTIVE COATING AS MANUFACTURED BY MASTERCHEM INDUSTRIES LLC, 3135 OLD HWY M, IMPERIAL, MO 63052, 800-325-3552. APPLY PER MANUFACTURER'S RECOMMENDATIONS.

5/52 BOLLARD DETAIL
NTS



6/52 SLOTTED PVC PIPE DETAIL
NTS

SLOTTED PVC PIPE NOTES:

THE SLOTTED PVC PIPE SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. THE MINIMUM REQUIREMENTS ARE AS FOLLOWS:

1. ALL PVC PIPE AND FITTING SHALL MEET THE REQUIREMENTS OF CONSTRUCTION SPECIFICATION 45, AND MATERIAL SPECIFICATION 547.
2. SLOTS SHALL BE PLACED IN NO MORE THAN FOUR (4) ROWS SYMMETRICALLY ABOUT THE PIPE CENTERLINE, UNLESS APPROVED OTHERWISE.
3. SLOTTED PIPE SHALL PROVIDE A MINIMUM OF FOUR (4) SQUARE INCHES OF OPEN AREA PER LINEAR FOOT OF PIPE.

REVISIONS		
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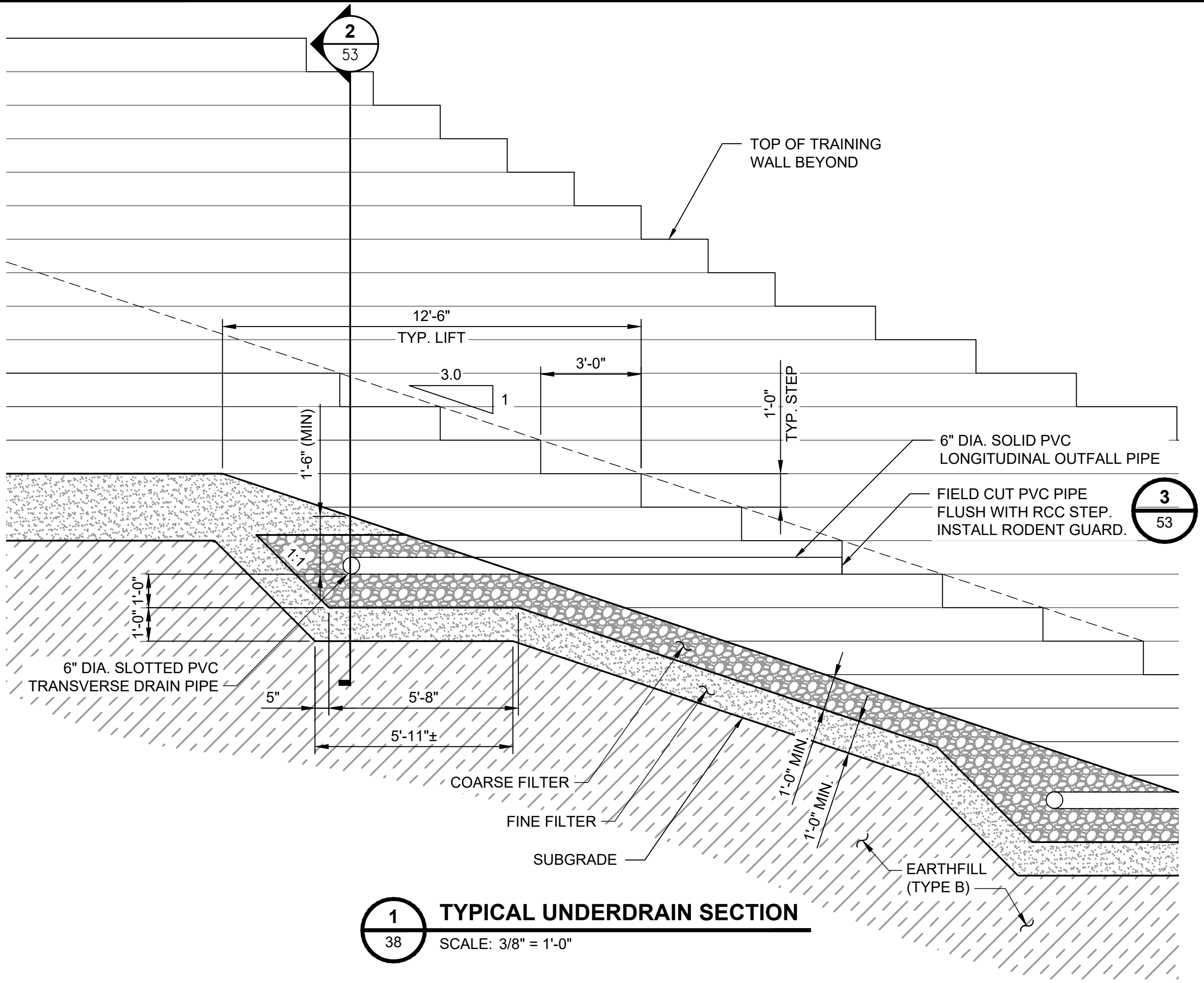
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 50–54.dwg
DATE CHECKED: 8/4/2021

DRAINAGE SYSTEM DETAILS (3 OF 5)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

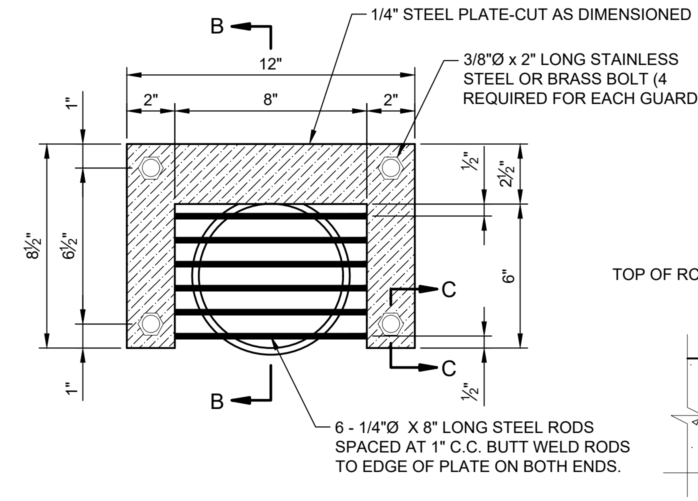
United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 52
OF 83

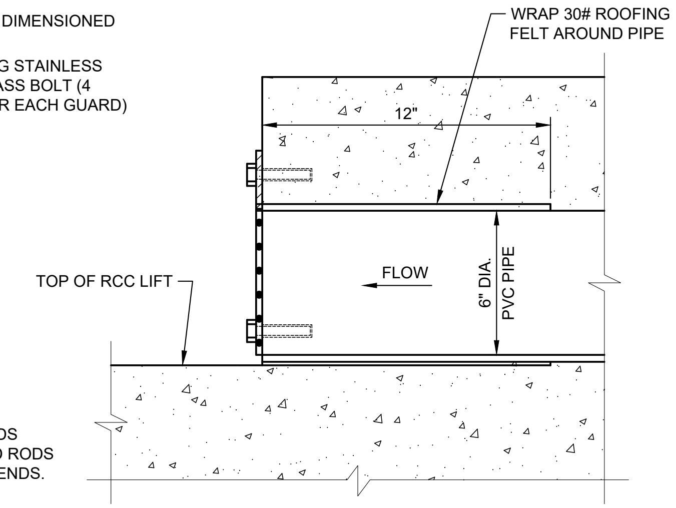


1 / 38 **TYPICAL UNDERDRAIN SECTION**

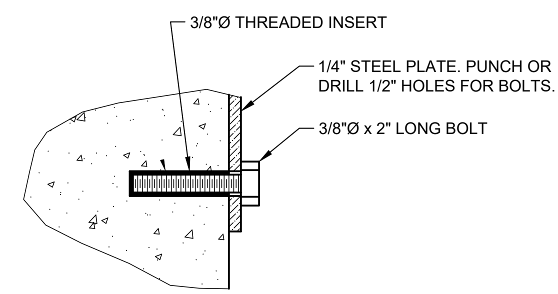
SCALE: 3/8" = 1'-0"



ELEVATION



SECTION B-B



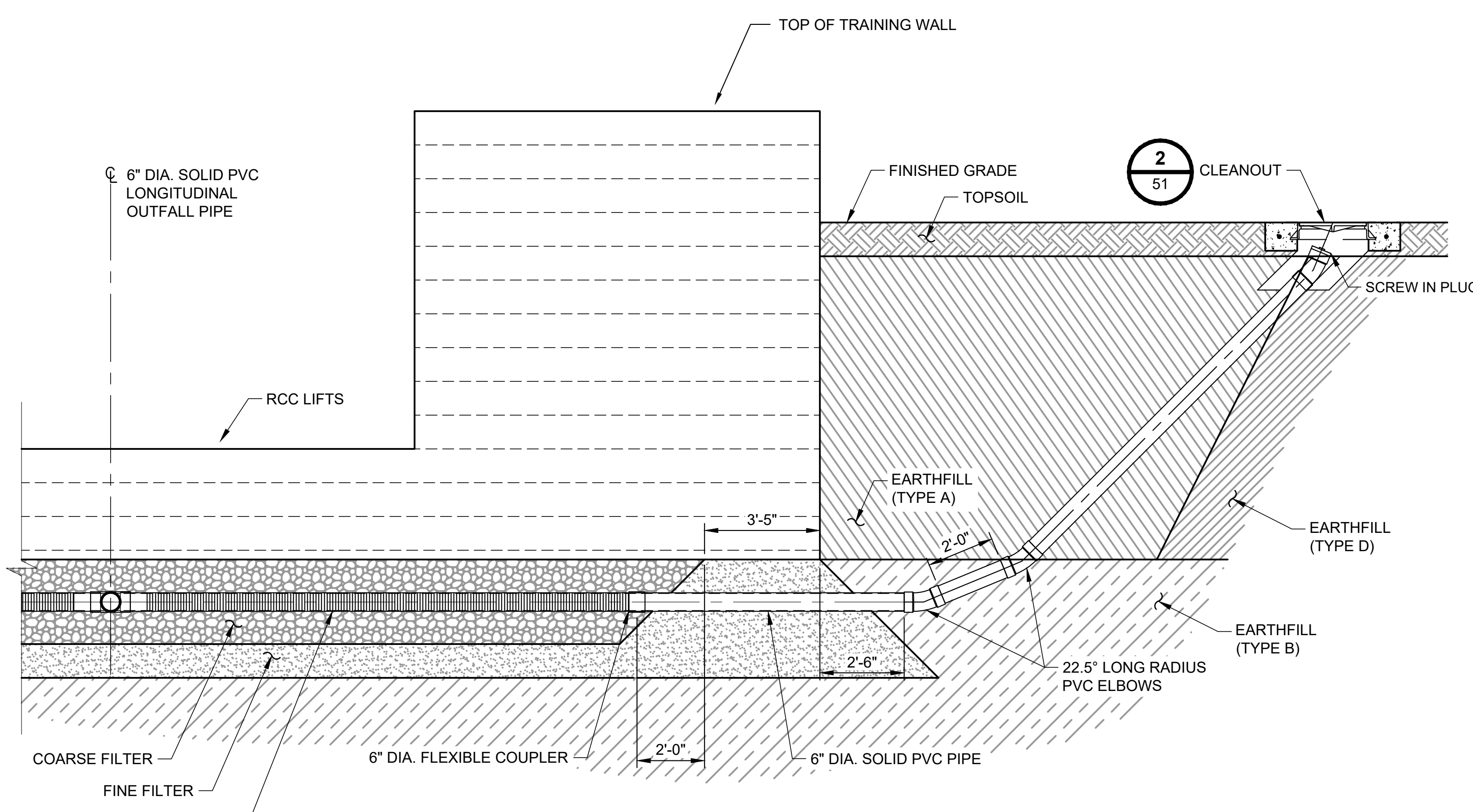
SECTION C-C

NOTES:

1. RODENT GUARDS SHALL BE GALVANIZED AFTER FABRICATION. SEE MATERIAL SPECIFICATION 581 AND CONSTRUCTION SPECIFICATION 81. RODENT GUARDS TO BE PLACED OVER ALL DRAIN PIPE OUTFALLS.
2. NON-SHRINK GROUT TO BE APPLIED IF AND AS DIRECTED BY THE ENGINEER, FOR FILLING IN IRREGULARITIES ON THE CONCRETE SURFACE AND ENSURING A FLUSH MOUNTED BASE PLATE.
3. THE CONTRACTOR MAY PROPOSE ANOTHER FABRICATION OPTION FOR THE RODENT GUARDS FROM WHAT IS SHOWN, SUCH AS LASER CUTTING 1/4" STEEL PLATE AND GALVANIZING AFTER FABRICATION. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL BY THE ENGINEER PRIOR TO FABRICATION.

3 / 53 **RODENT GUARD DETAILS (IMPACT BASIN)**

SCALE: NTS



2 / 53 **TYPICAL CLEANOUT SECTION**

SCALE: 3/8" = 1'-0"

REVISIONS		
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CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 53.dwg
DATE CHECKED: 8/4/2021

DRAINAGE SYSTEM DETAILS (4 OF 5)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754

SHEET NO. 53 OF 83

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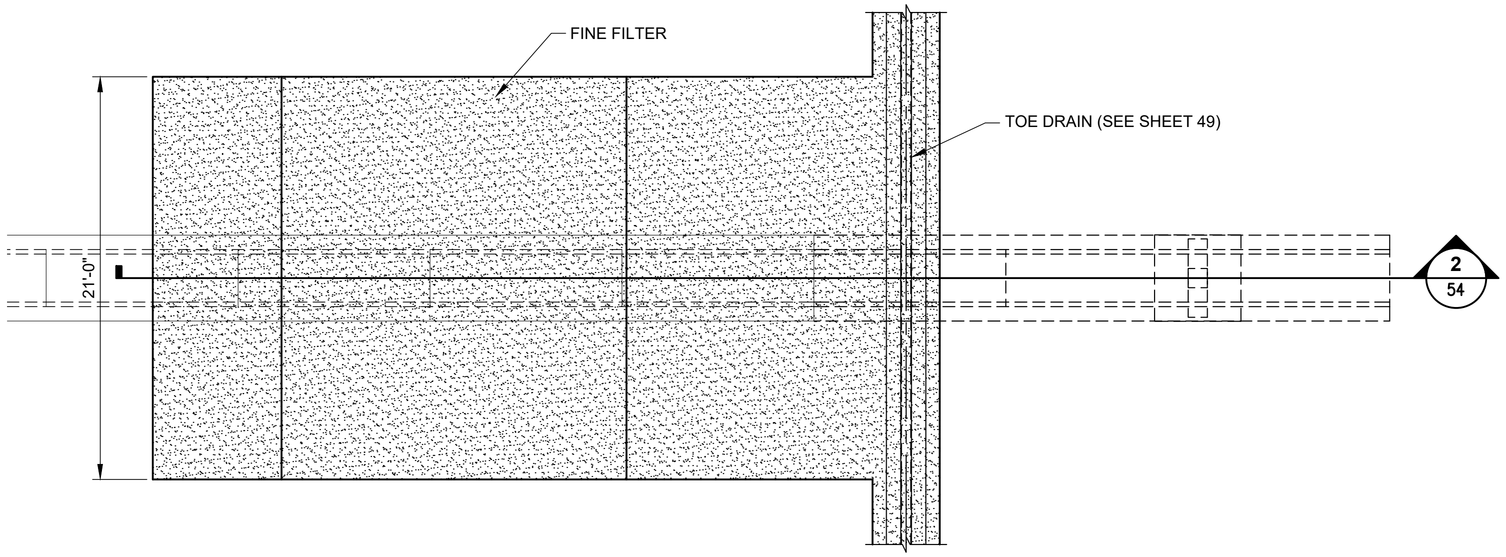
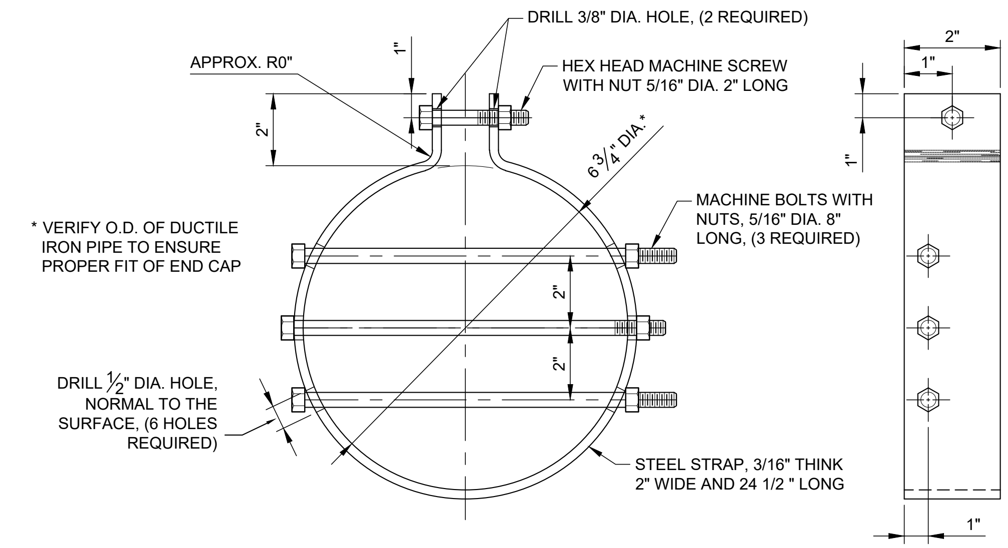
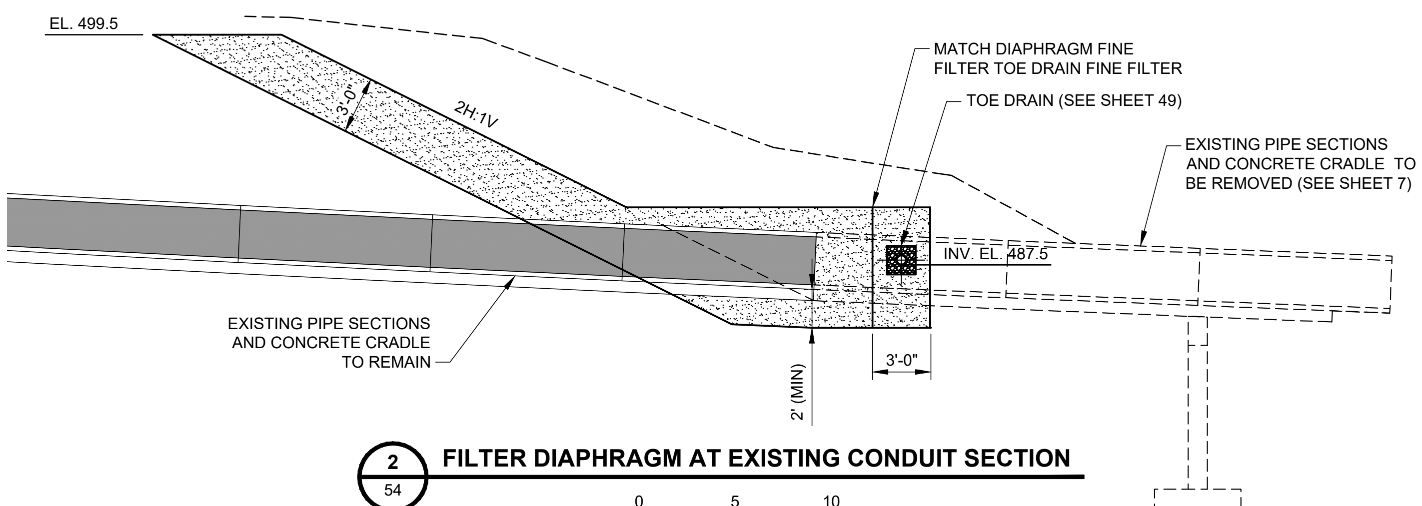


1 FILTER DIAPHRAGM AT EXISTING CONDUIT PLAN
49

0 5 10
SCALE IN FEET



4 RODENT GUARD AT OUTLET DRAIN PIPE DETAILS
54



2 FILTER DIAPHRAGM AT EXISTING CONDUIT SECTION
54

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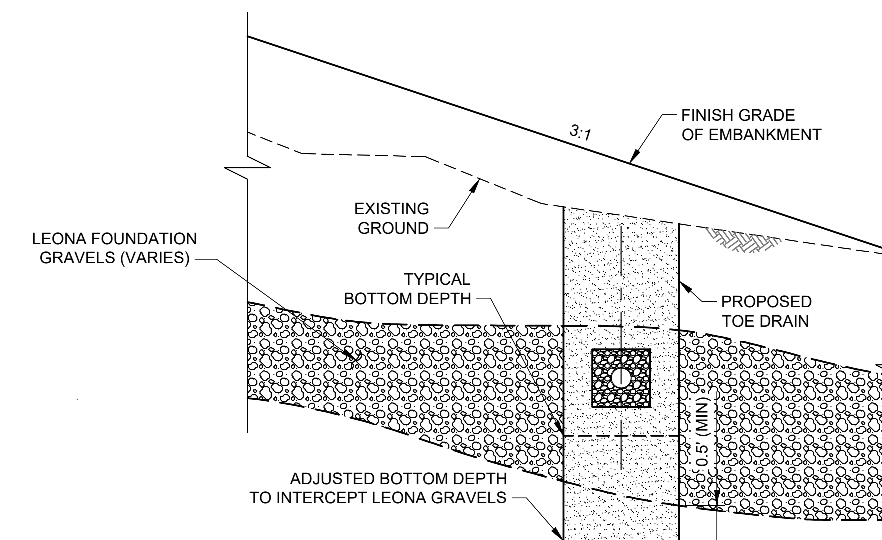
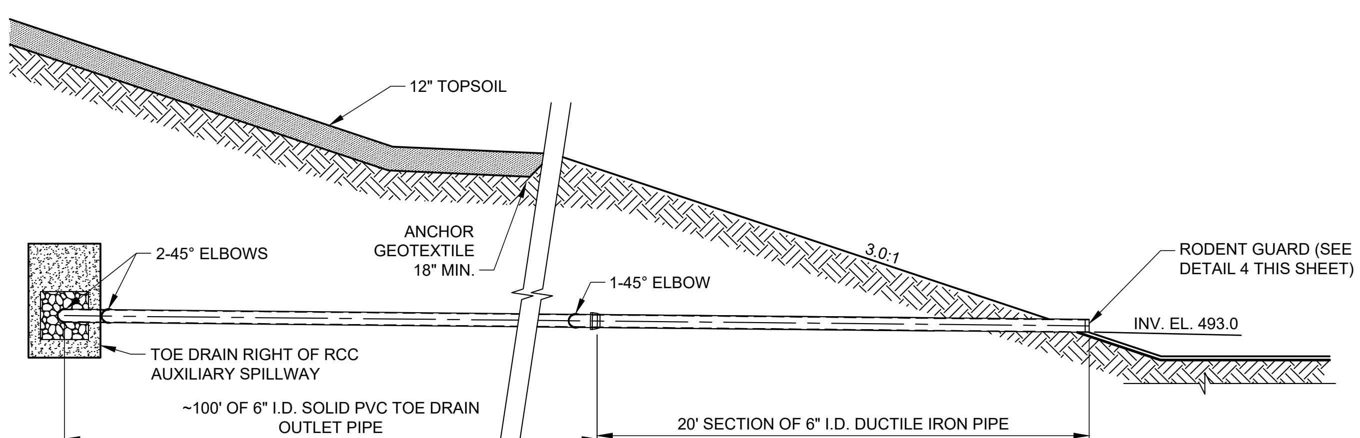


5 TOE DRAIN ADJUSTMENT TYPICAL SECTION
49

NTS



3 OUTFALL LINE DETAIL
49

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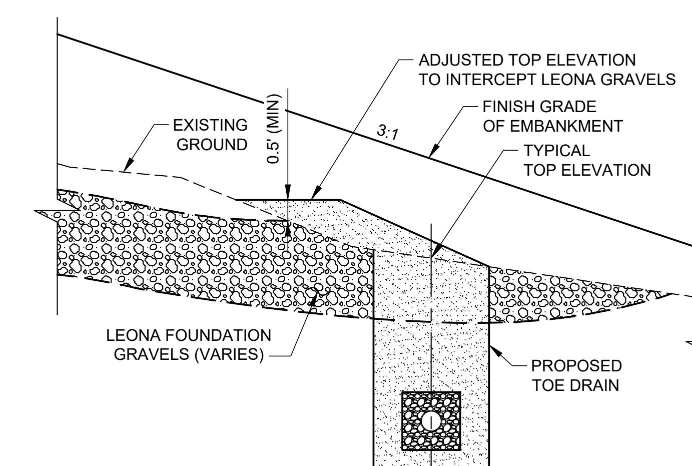

6 TOE DRAIN ADJUSTMENT TYPICAL SECTION
49

NTS

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FILE NAME: Plum 21 – Sht 50–54.dwg
DATE CHECKED: 8/4/2021

DRAINAGE SYSTEM DETAILS (5 OF 5)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO.
TX–EN–0754
SHEET NO.
54
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83

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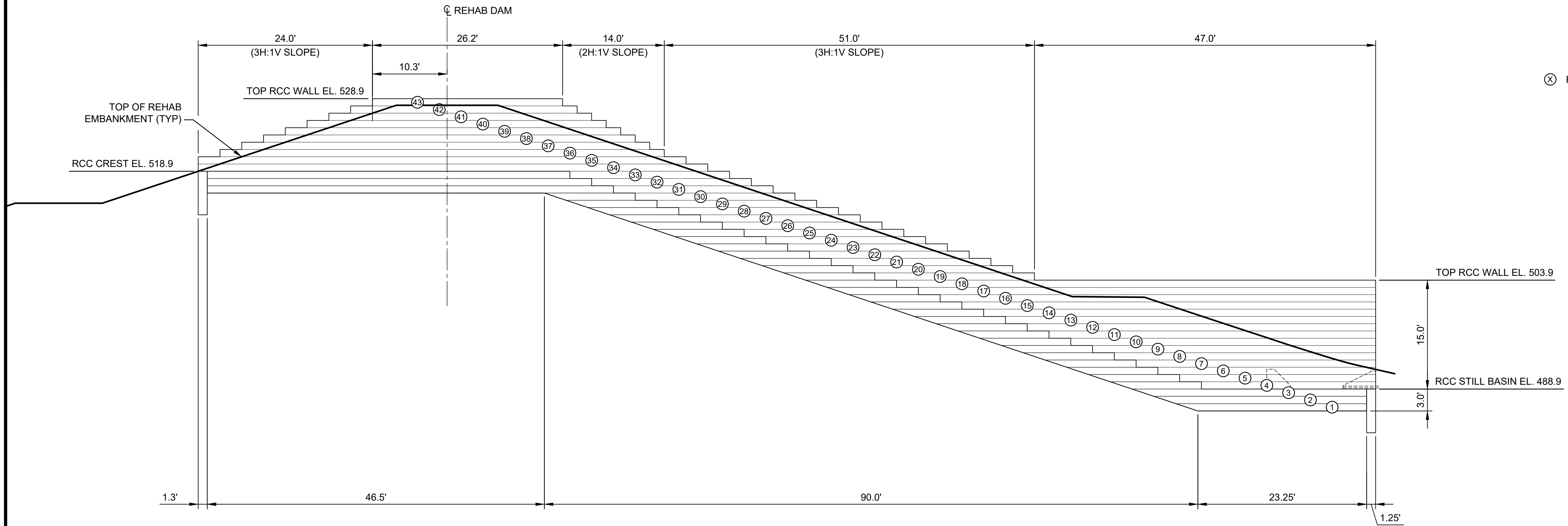
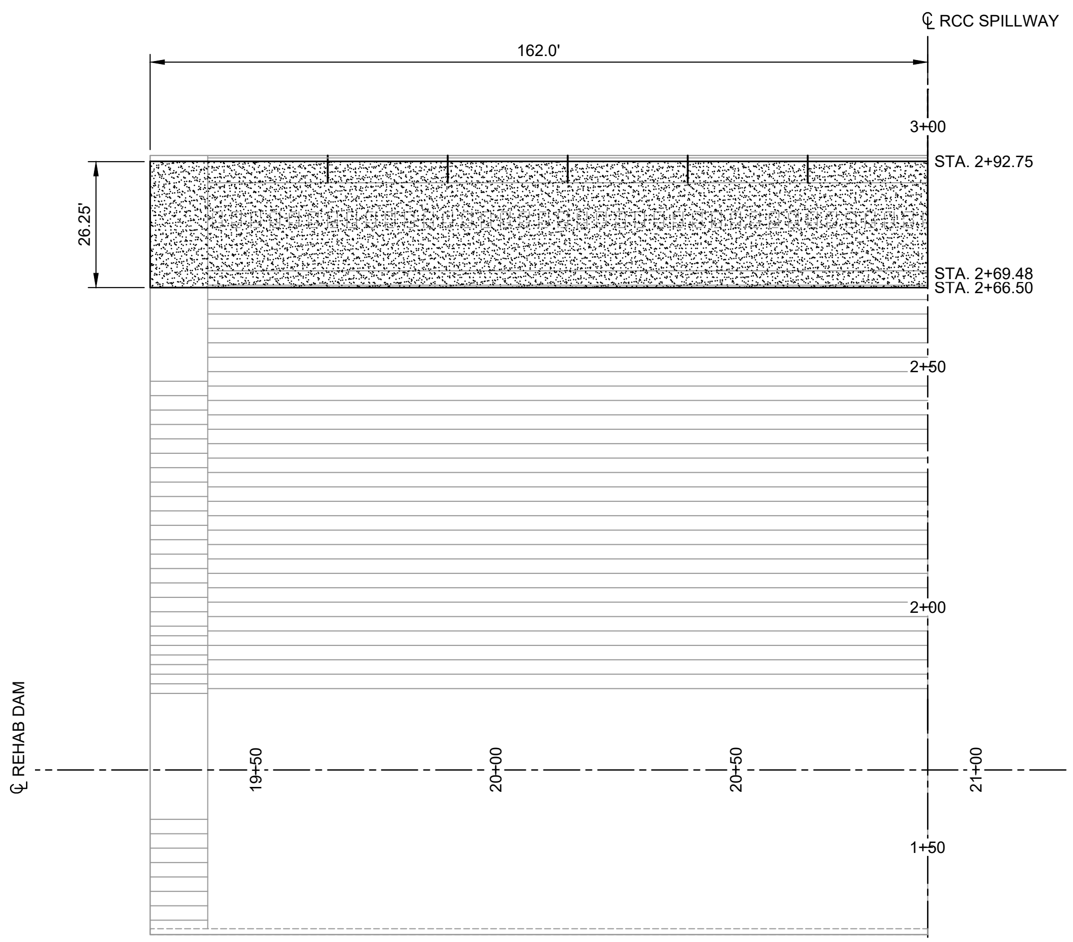


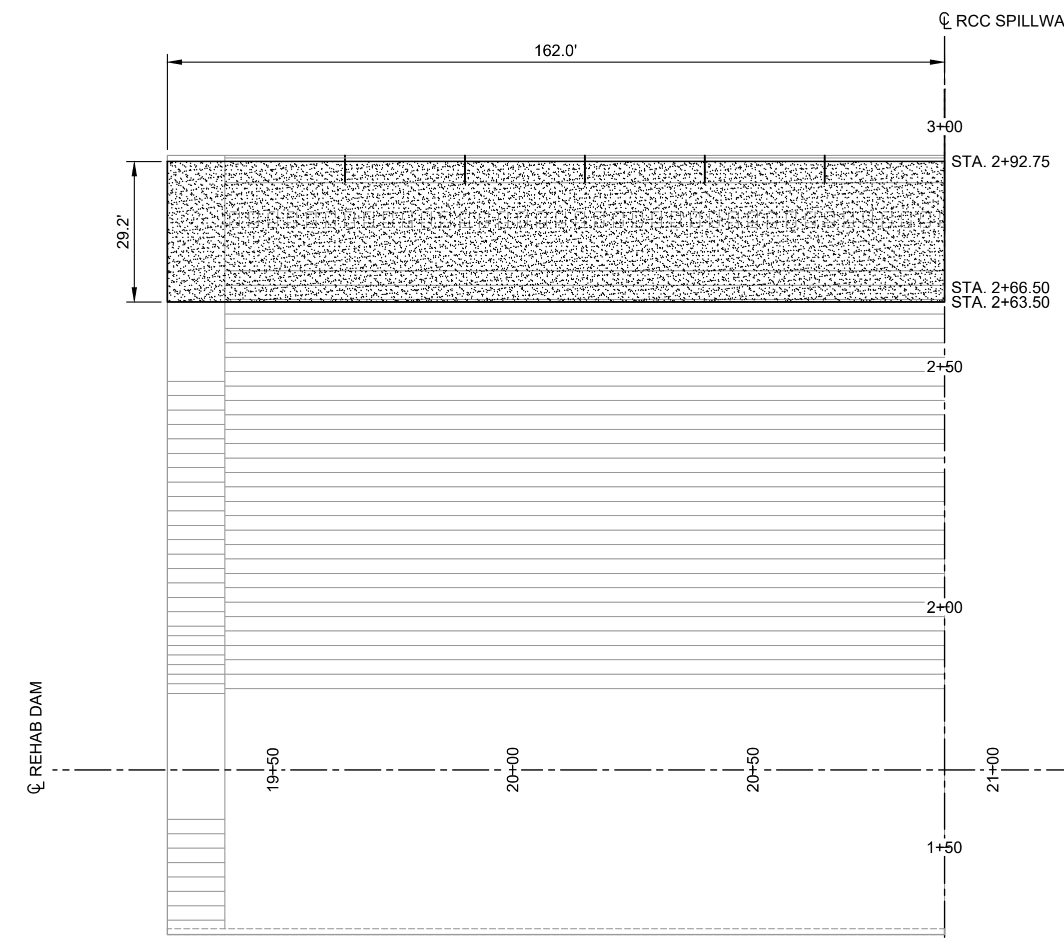
1 RCC SPILLWAY PROFILE

LEGEND:

(X) RCC LAYER DESIGNATION



PARTIAL PLAN - RCC LAYER 1 (1) S.G. EL. 485.9 F.G. EL. 486.9



PARTIAL PLAN - RCC LAYER 2 (2) S.G. EL. 486.9 F.G. EL. 487.9

NOTES:

1. ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
3. THE LAYER SEQUENCE SHOWN ON THIS SHEET IS A LOGICAL PROGRESSION FOR THE PLACEMENT OF THE ROLLER COMPACTED CONCRETE FOR THE CONSTRUCTION OF THE R.C.C. CHUTE SPILLWAY. ACTUAL ORDER AND LIMITS MAY VARY ONLY AS PERMITTED BY THE ENGINEER.
4. S.G. = SUBGRADE; F.G. = FINISHED GRADE

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SCALE IN FEET

REVISIONS		
DATE	APPROVED	TITLE

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FILE NAME: Plum 21 - Sht 55-66.dwg
DATE CHECKED: 8/4/2021

RCC SPILLWAY LIFT SCHEMATIC (1 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
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DRAWING NO. TX-EN-0754
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OF 83

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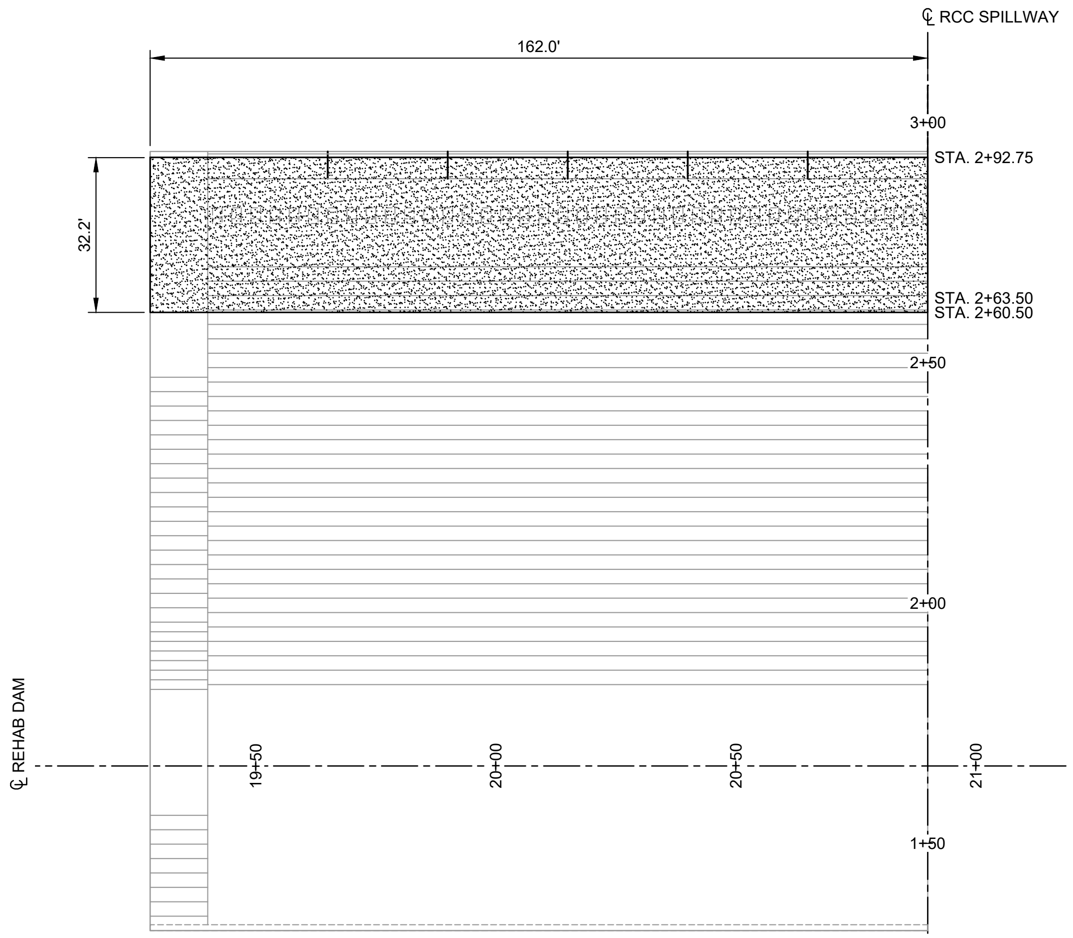

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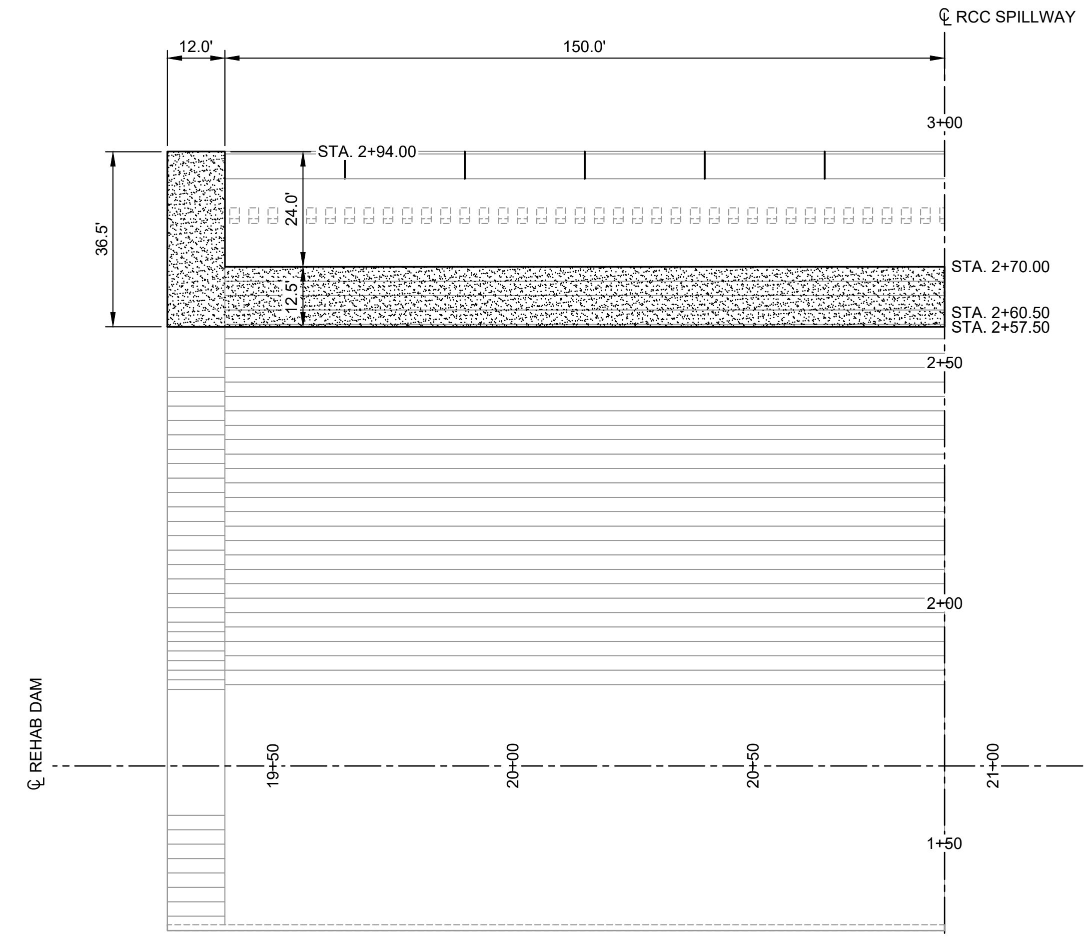

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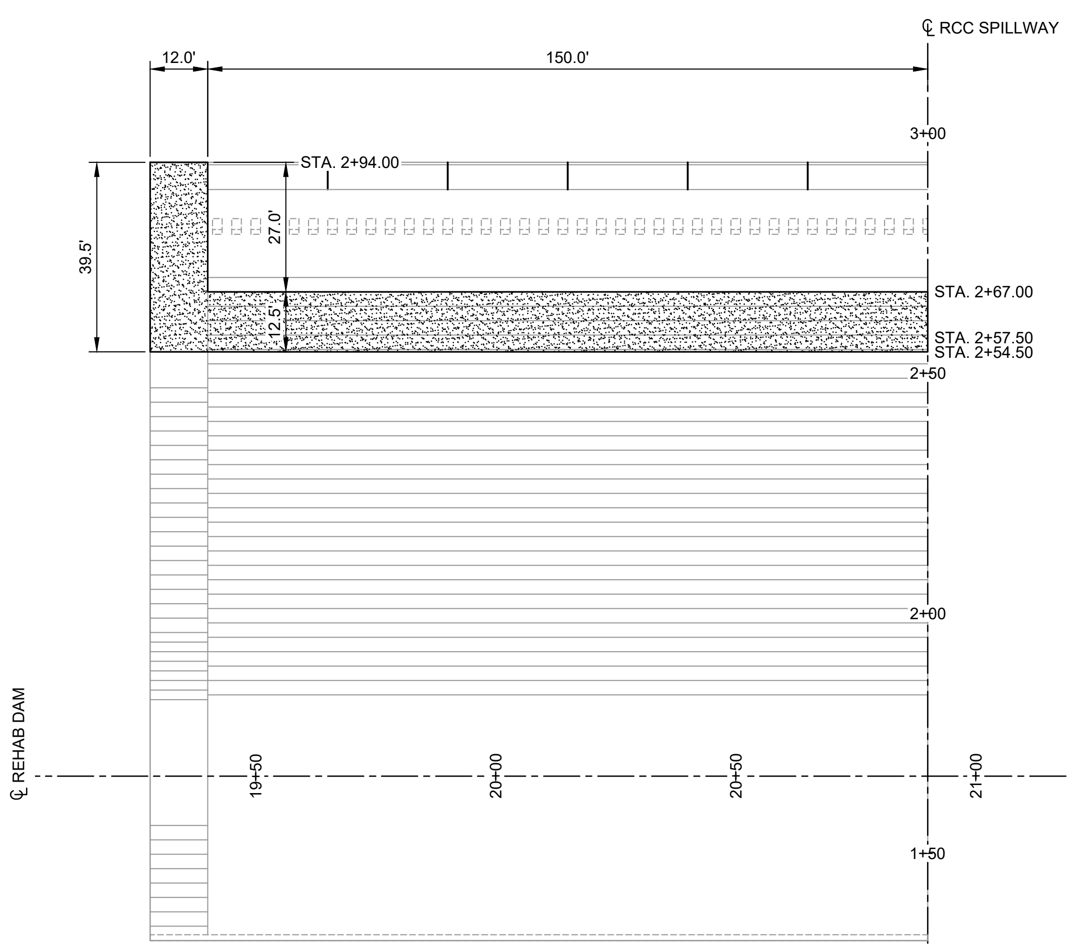
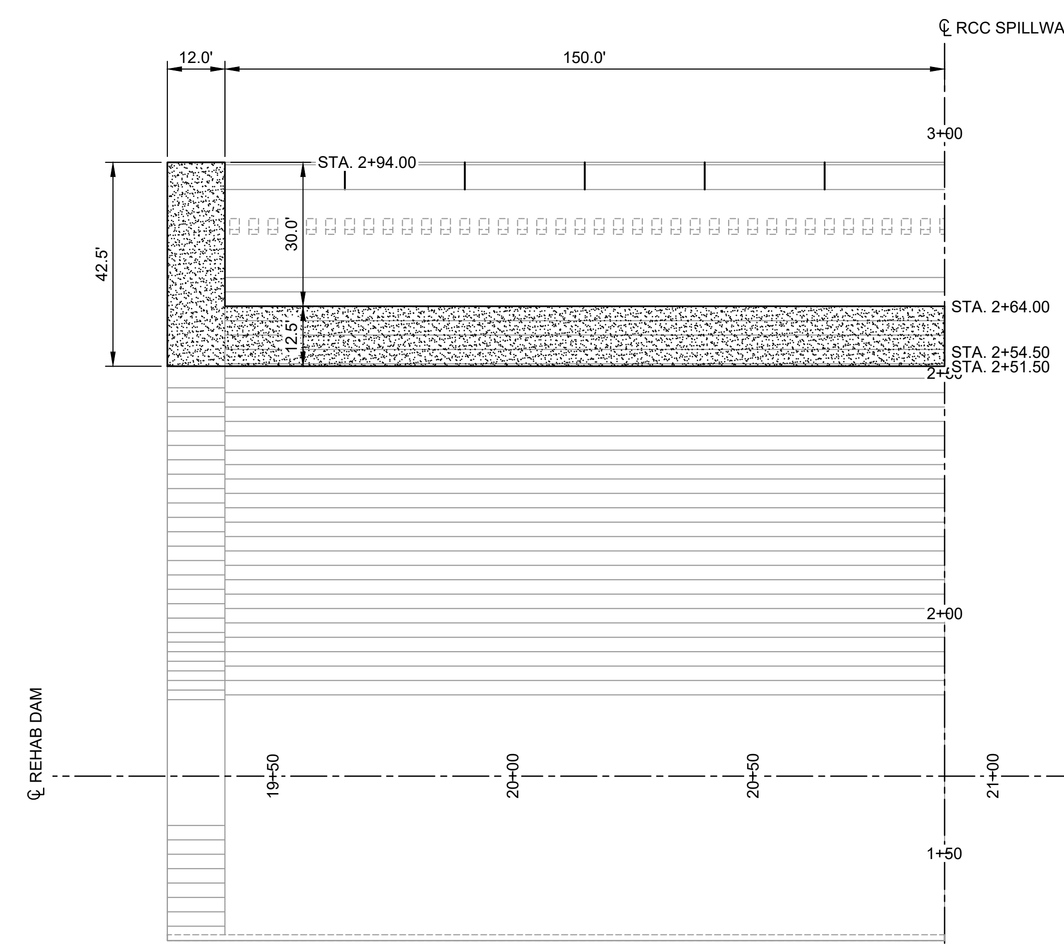


PARTIAL PLAN - RCC LAYER 5 ⑤ S.G. EL. 489.9 F.G. EL. 490.9



PARTIAL PLAN - RCC LAYER 6 ⑥ S.G. EL. 490.9 F.G. EL. 491.9

NOTES:

1. ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
3. THE LAYER SEQUENCE SHOWN ON THIS SHEET IS A LOGICAL PROGRESSION FOR THE PLACEMENT OF THE ROLLER COMPACTED CONCRETE FOR THE CONSTRUCTION OF THE R.C.C. CHUTE SPILLWAY. ACTUAL ORDER AND LIMITS MAY VARY ONLY AS PERMITTED BY THE ENGINEER.
4. S.G. = SUBGRADE; F.G. = FINISHED GRADE

0 10 20 40
SCALE IN FEET

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DATE CHECKED: 8/4/2021

RCC SPILLWAY LIFT SCHEMATIC (2 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

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OF 83

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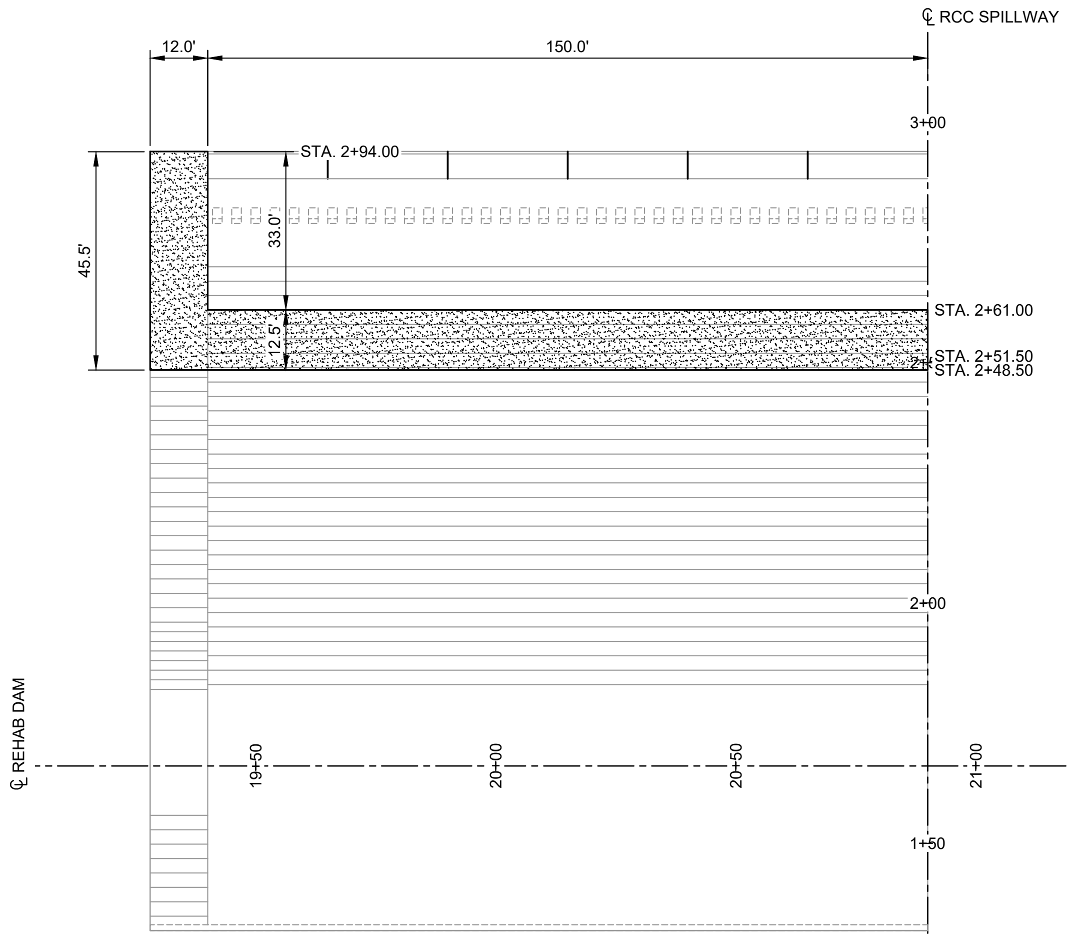
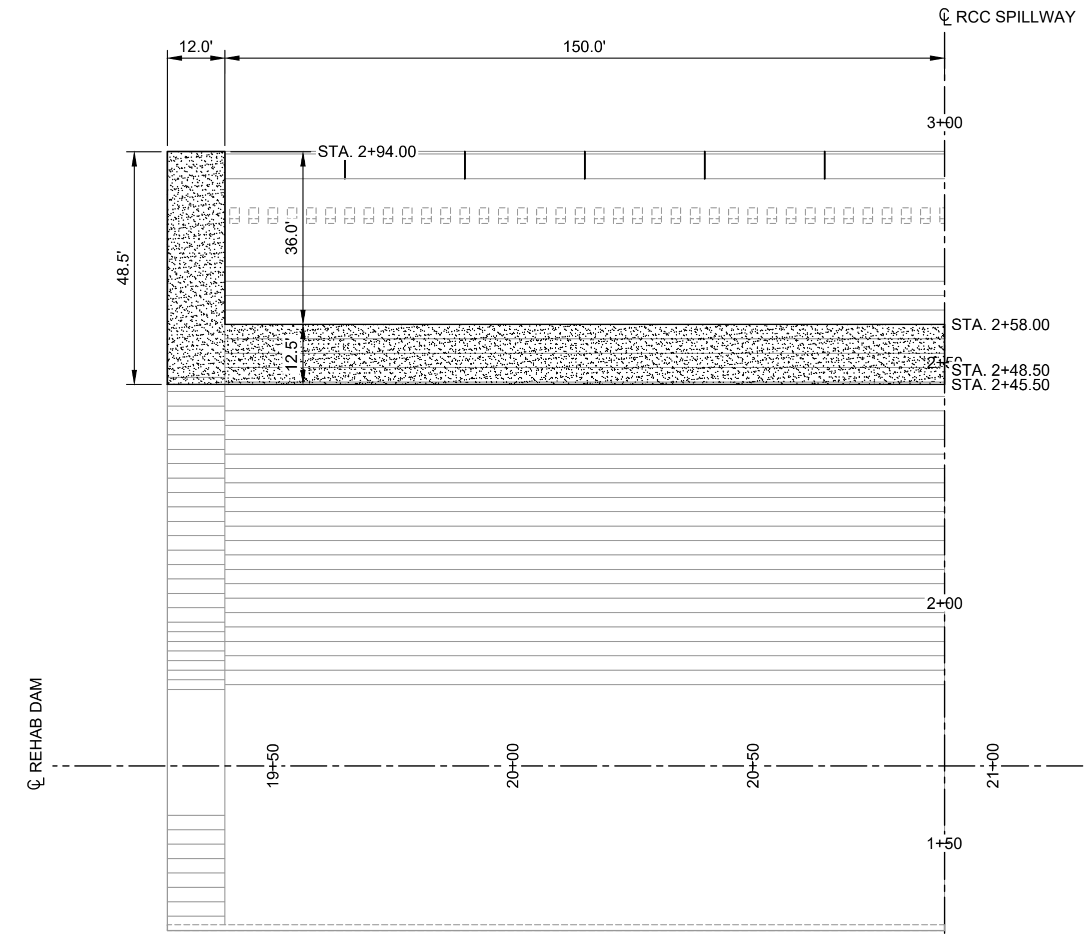
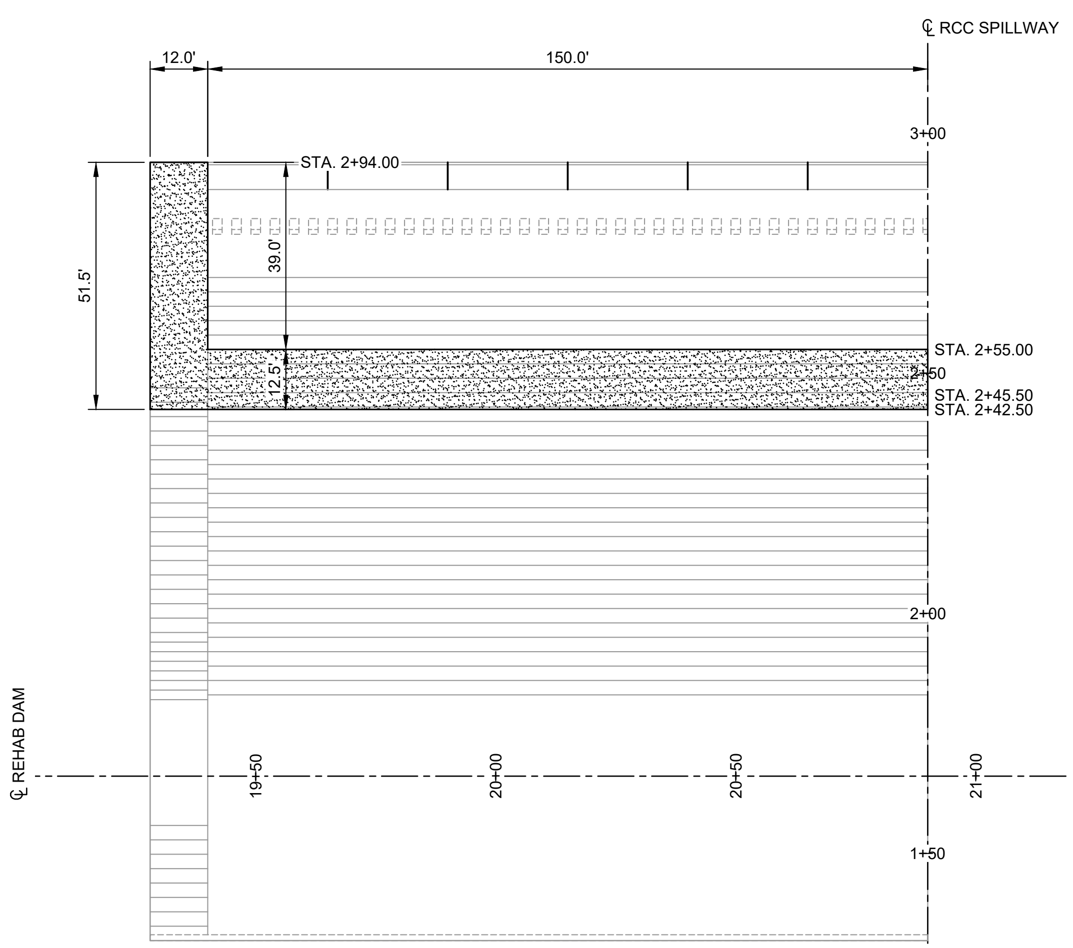


PARTIAL PLAN - RCC LAYER 7 ⑦ S.G. EL. 491.9 F.G. EL. 492.9



PARTIAL PLAN - RCC LAYER 8 ⑧ S.G. EL. 492.9 F.G. EL. 493.9



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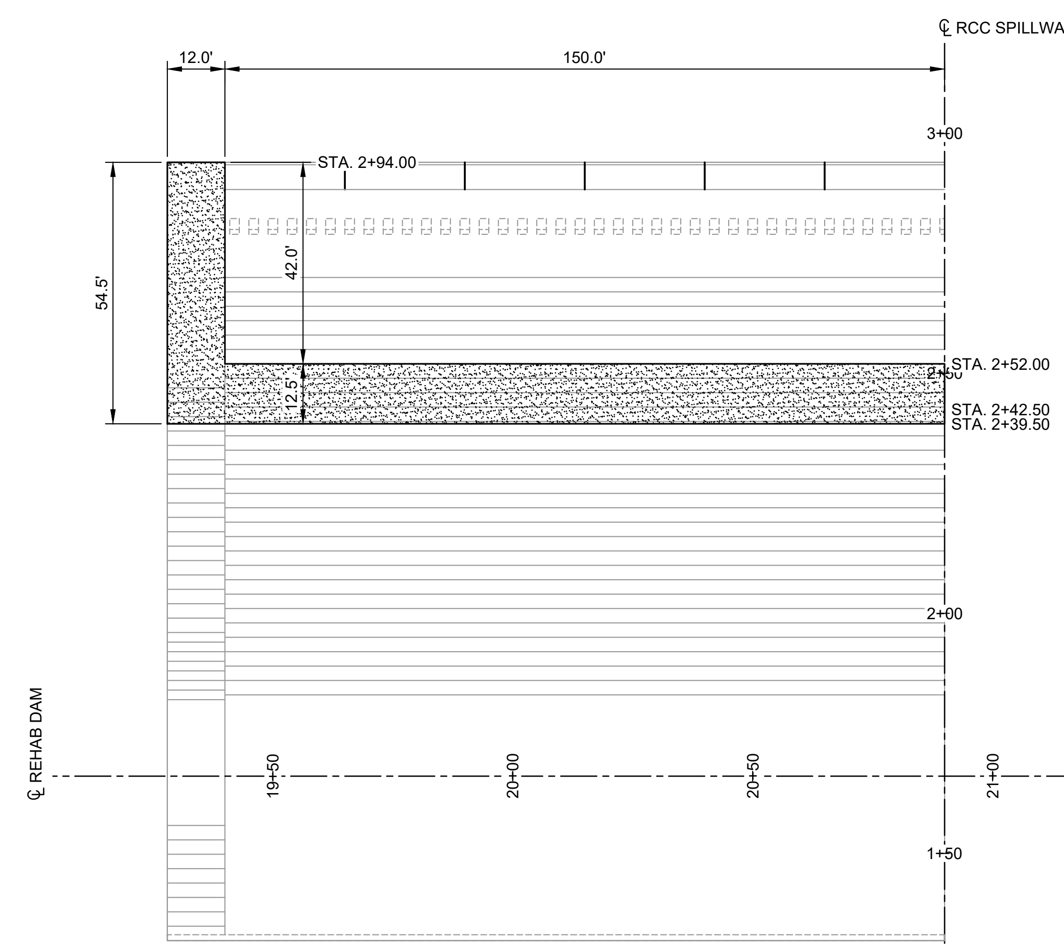

PARTIAL PLAN - RCC LAYER 10 ⑩ S.G. EL. 494.9 F.G. EL. 495.9

NOTES:

1. ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
3. THE LAYER SEQUENCE SHOWN ON THIS SHEET IS A LOGICAL PROGRESSION FOR THE PLACEMENT OF THE ROLLER COMPACTED CONCRETE FOR THE CONSTRUCTION OF THE R.C.C. CHUTE SPILLWAY. ACTUAL ORDER AND LIMITS MAY VARY ONLY AS PERMITTED BY THE ENGINEER.
4. S.G. = SUBGRADE; F.G. = FINISHED GRADE

0 10 20 40
SCALE IN FEET

REVISIONS		
DATE	APPROVED	TITLE

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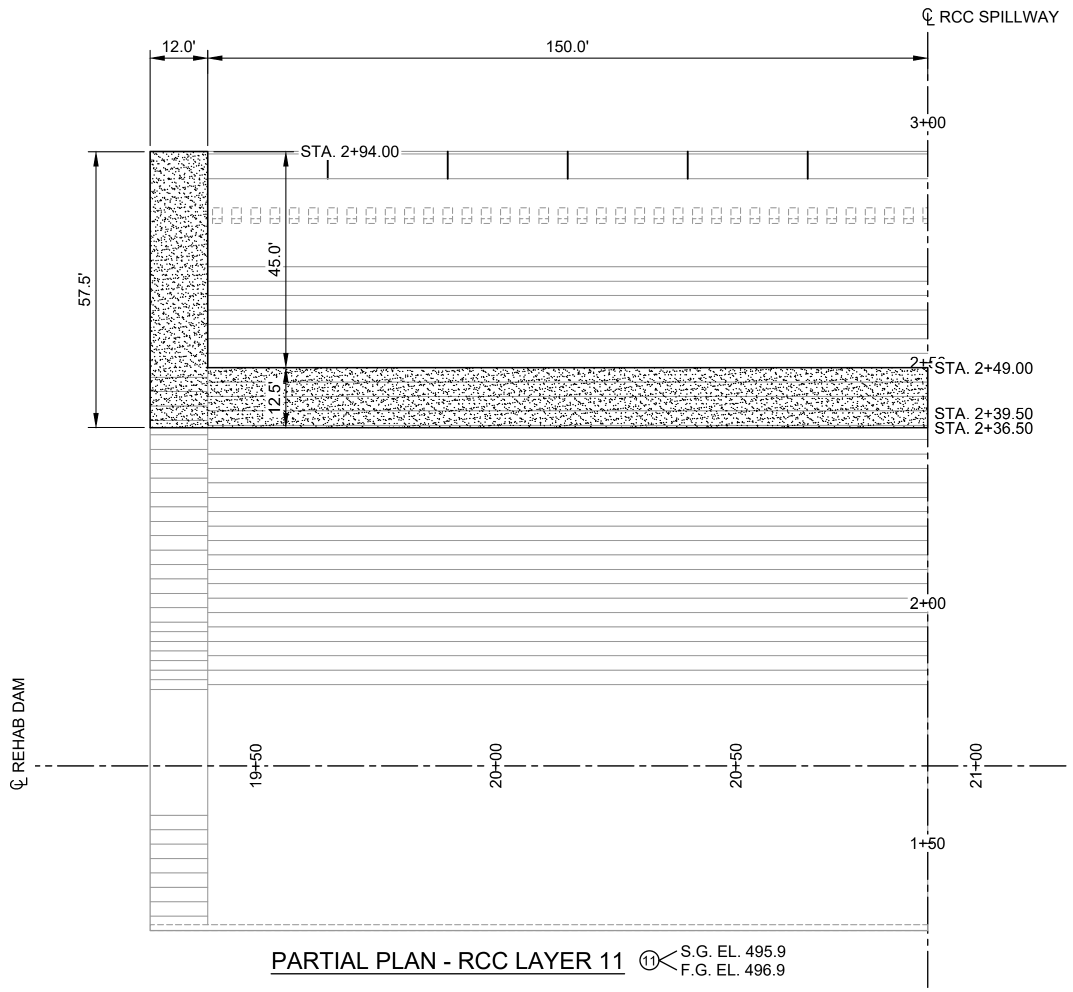
FILE NAME: Plum 21 – Sht 55–66.dwg
DATE CHECKED: 8/4/2021

RCC SPILLWAY LIFT SCHEMATIC (3 OF 12)

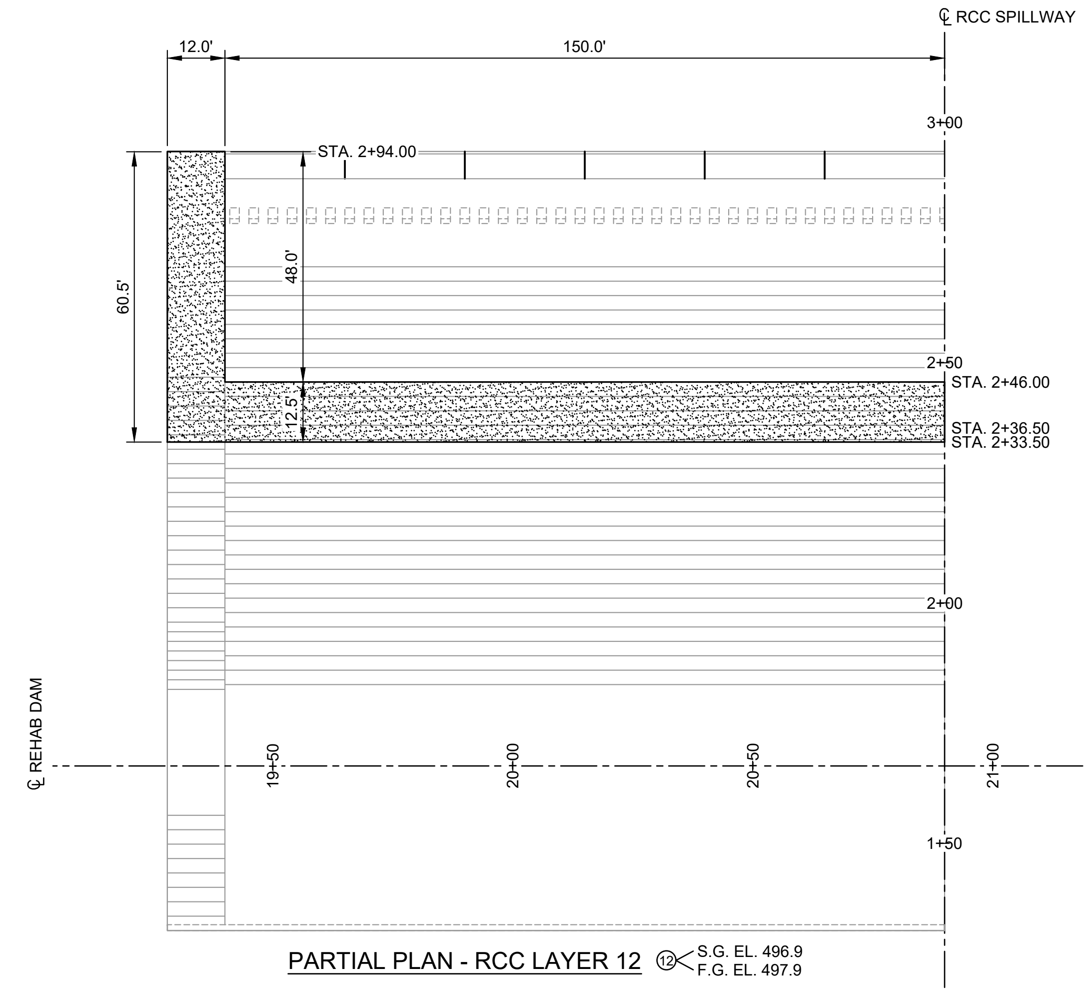
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

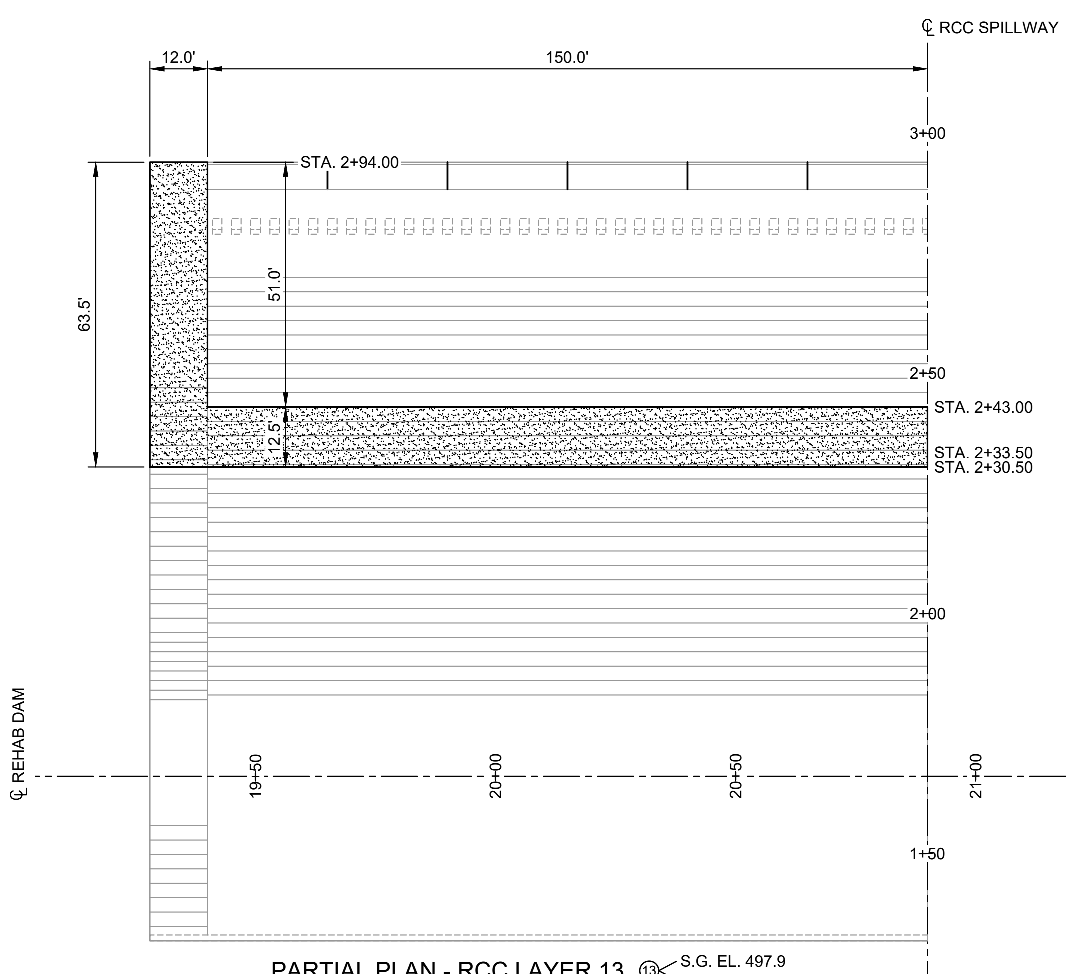
DRAWING NO. TX–EN–0754
SHEET NO. 57
OF 83



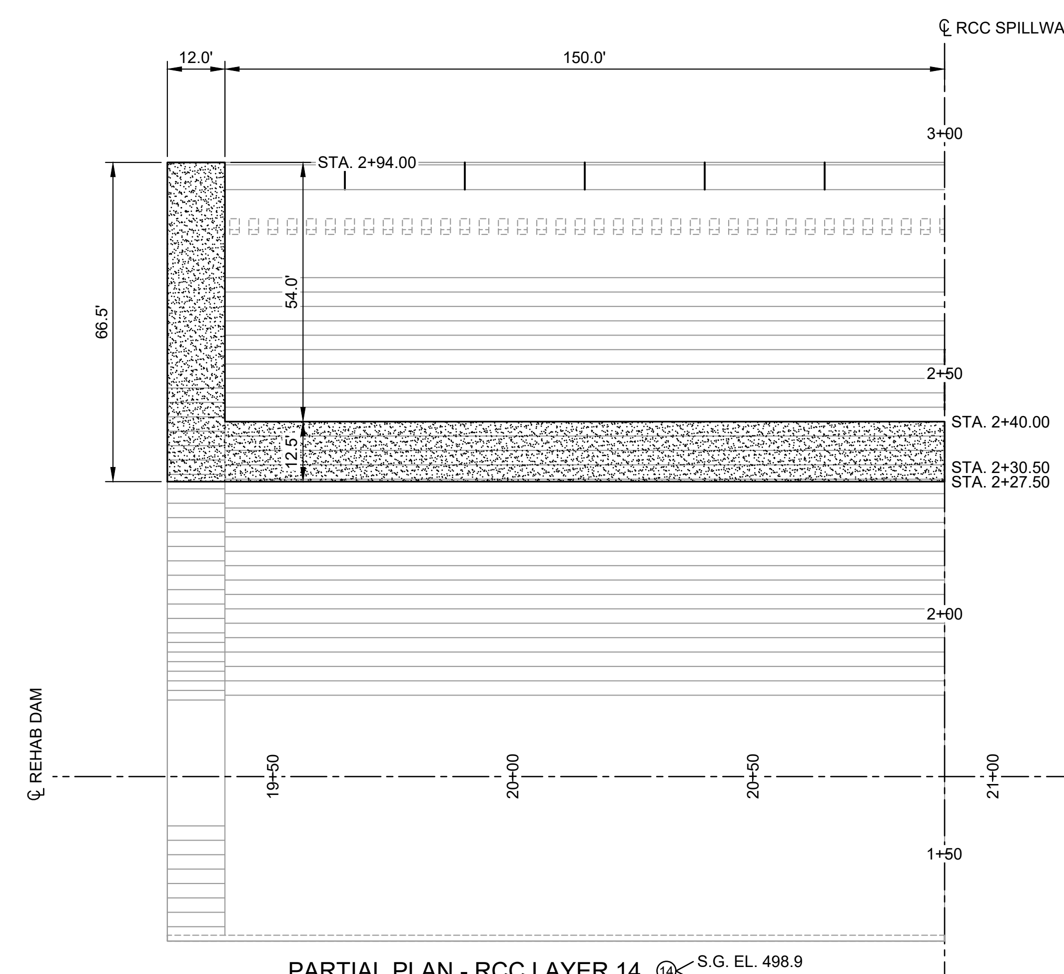
PARTIAL PLAN - RCC LAYER 11 (11) S.G. EL. 495.9 F.G. EL. 496.9



PARTIAL PLAN - RCC LAYER 12 (12) S.G. EL. 496.9 F.G. EL. 497.9



PARTIAL PLAN - RCC LAYER 13 (13) S.G. EL. 497.9 F.G. EL. 498.9



PARTIAL PLAN - RCC LAYER 14 (14) S.G. EL. 498.9 F.G. EL. 499.9

NOTES:

1. ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
3. THE LAYER SEQUENCE SHOWN ON THIS SHEET IS A LOGICAL PROGRESSION FOR THE PLACEMENT OF THE ROLLER COMPACTED CONCRETE FOR THE CONSTRUCTION OF THE R.C.C. CHUTE SPILLWAY. ACTUAL ORDER AND LIMITS MAY VARY ONLY AS PERMITTED BY THE ENGINEER.
4. S.G. = SUBGRADE; F.G. = FINISHED GRADE

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DATE CHECKED: 8/4/2021

RCC SPILLWAY LIFT SCHEMATIC (4 OF 12)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 58
OF 83

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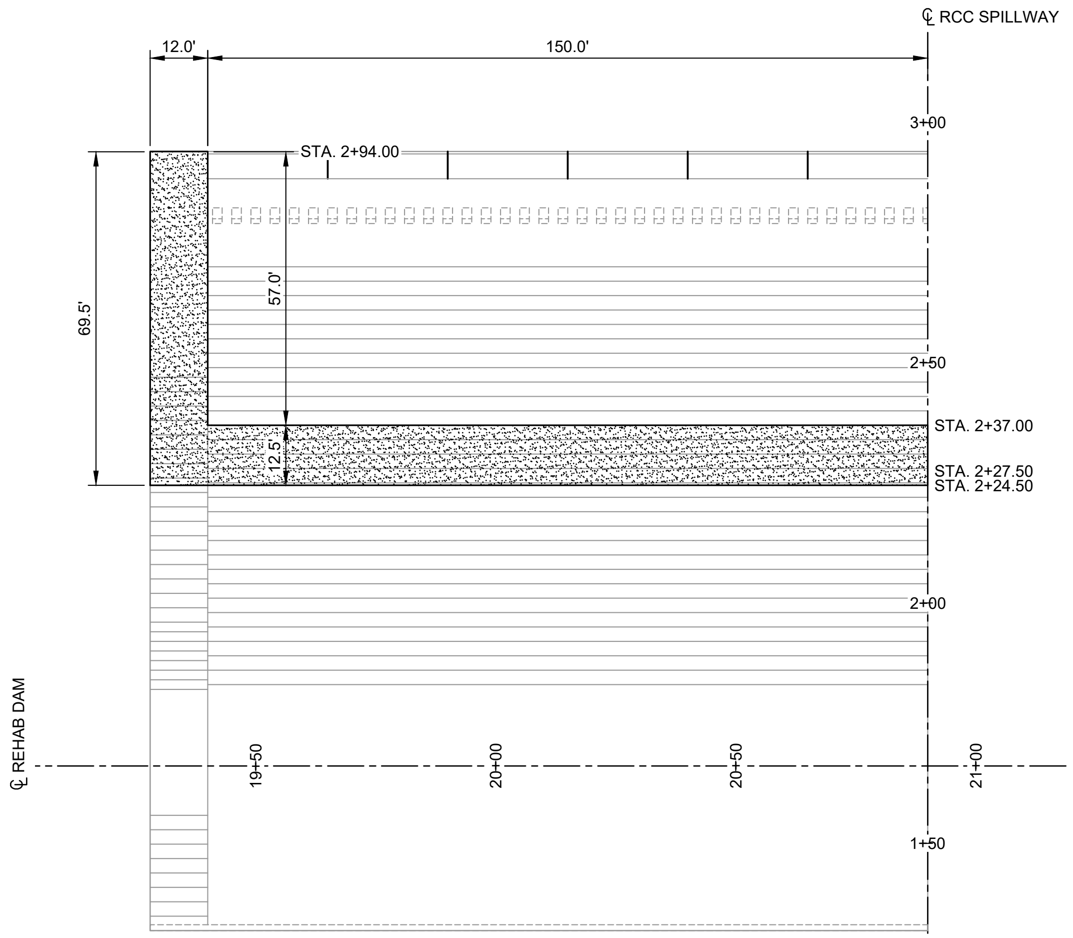
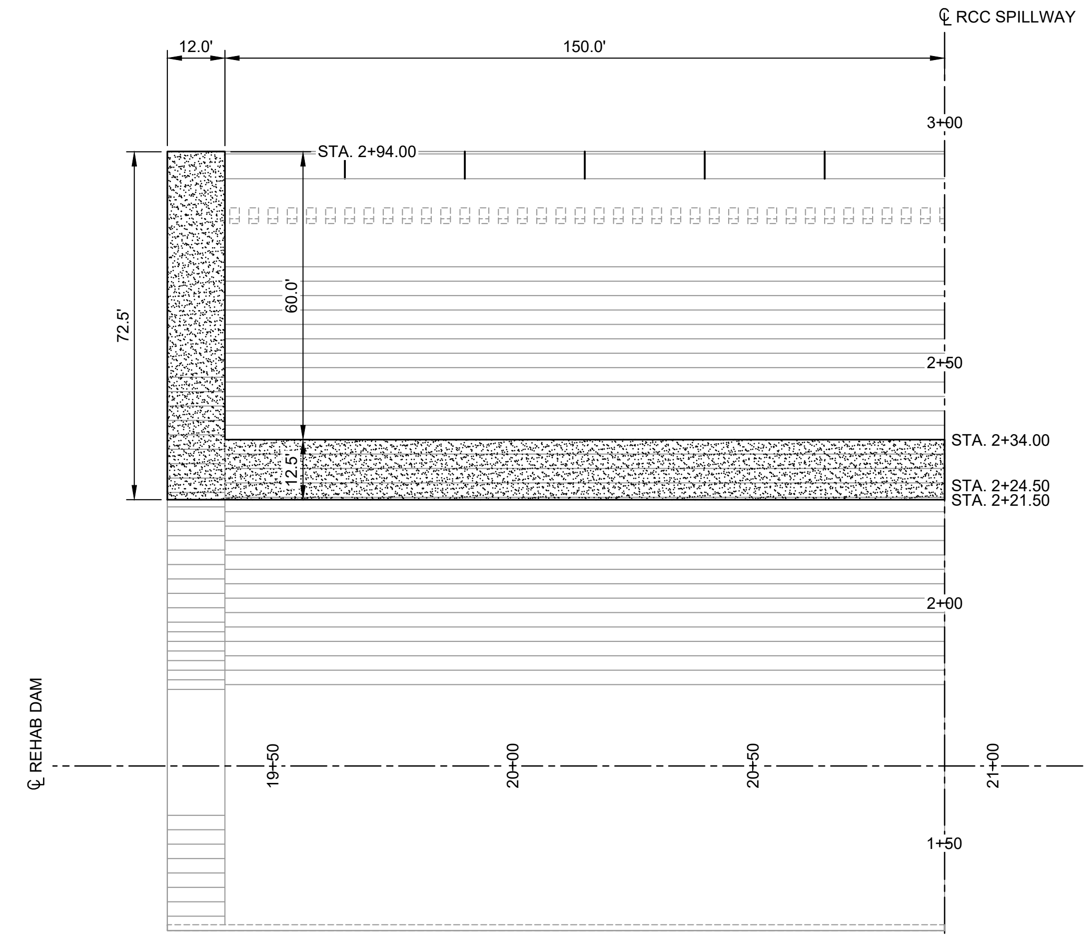
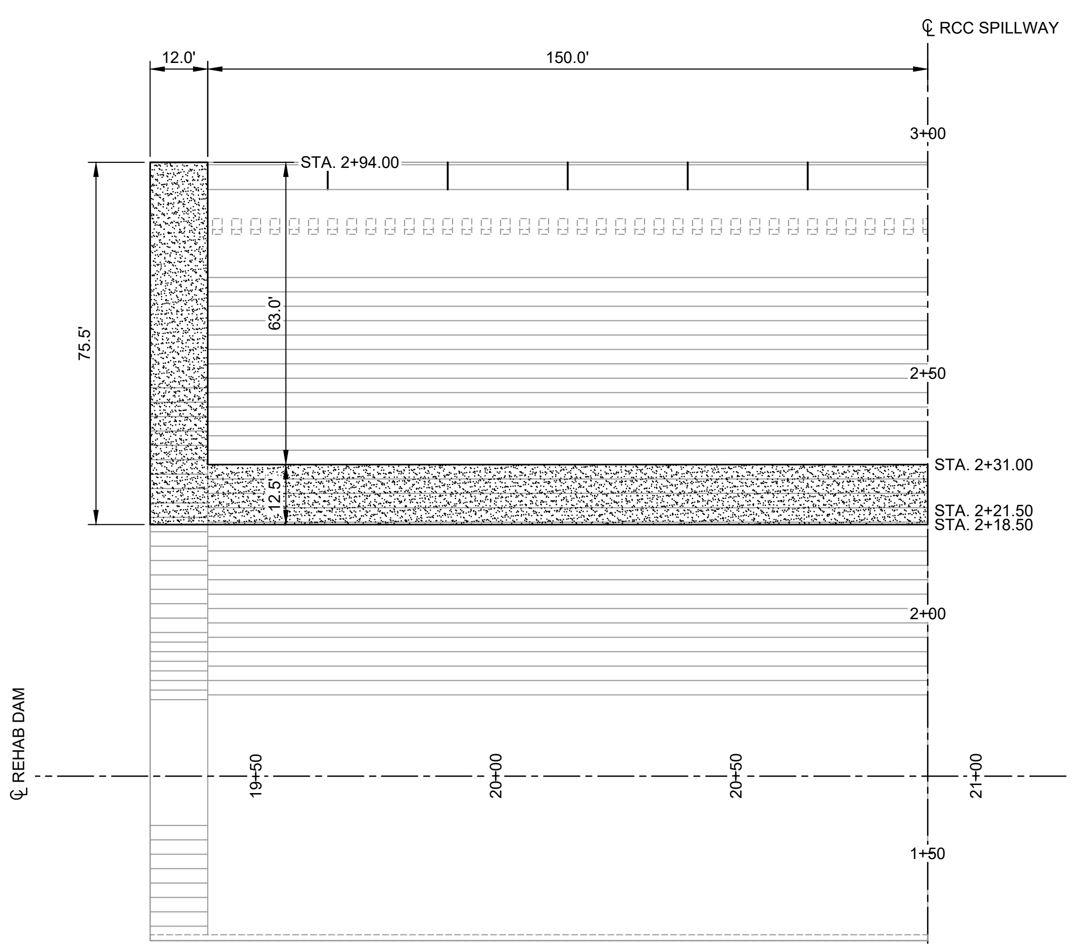


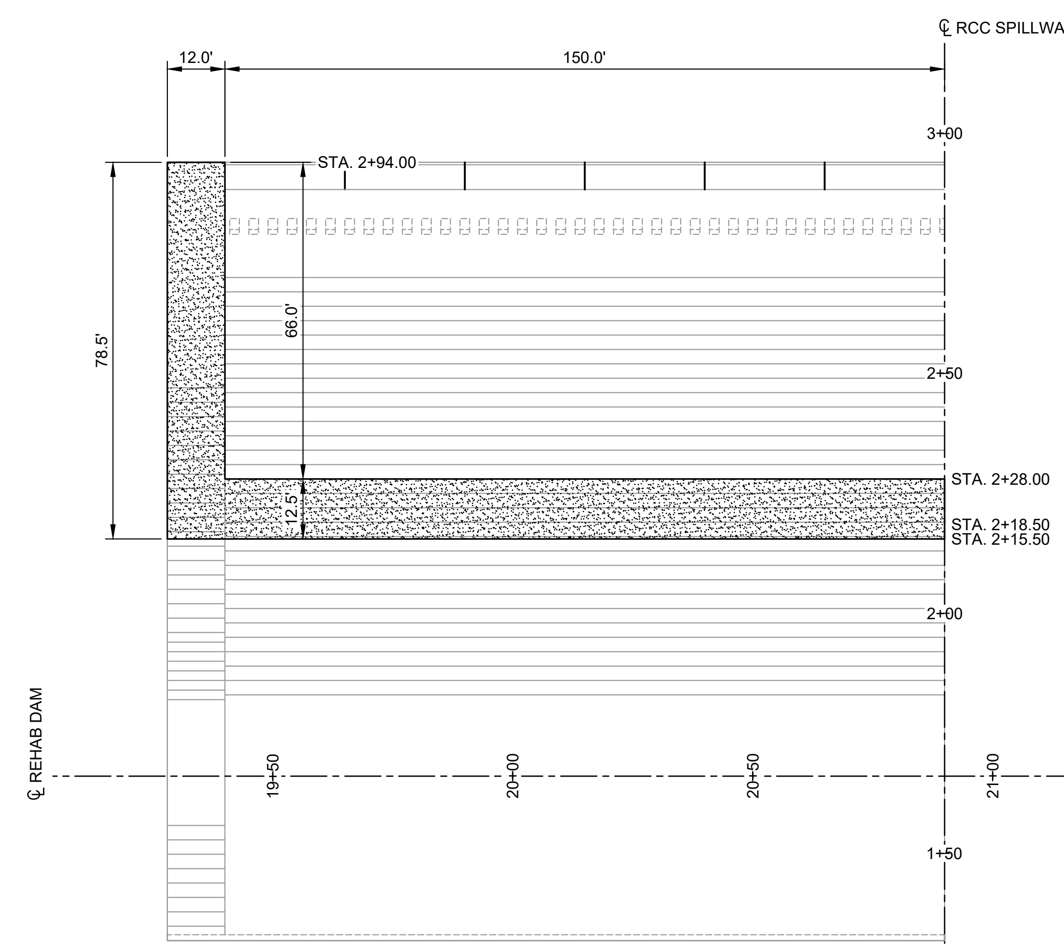
PARTIAL PLAN - RCC LAYER 15 (15) S.G. EL. 499.9 F.G. EL. 500.9



PARTIAL PLAN - RCC LAYER 16 (16) S.G. EL. 500.9 F.G. EL. 501.9



PARTIAL PLAN - RCC LAYER 17 (17) S.G. EL. 501.9 F.G. EL. 502.9



PARTIAL PLAN - RCC LAYER 18 (18) S.G. EL. 502.9 F.G. EL. 503.9

NOTES:

1. ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
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4. S.G. = SUBGRADE; F.G. = FINISHED GRADE

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RCC SPILLWAY LIFT SCHEMATIC (5 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 59
OF 83

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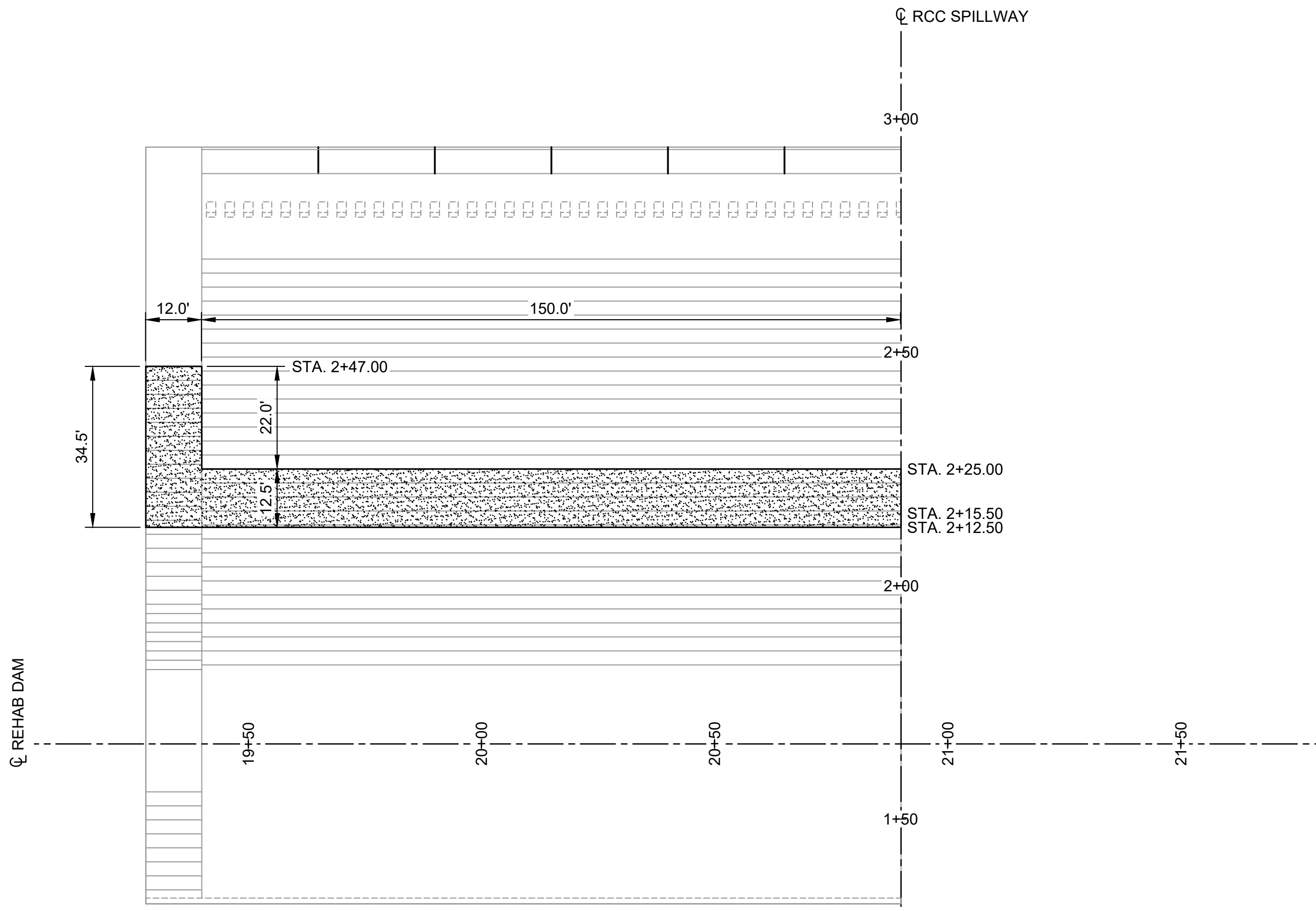
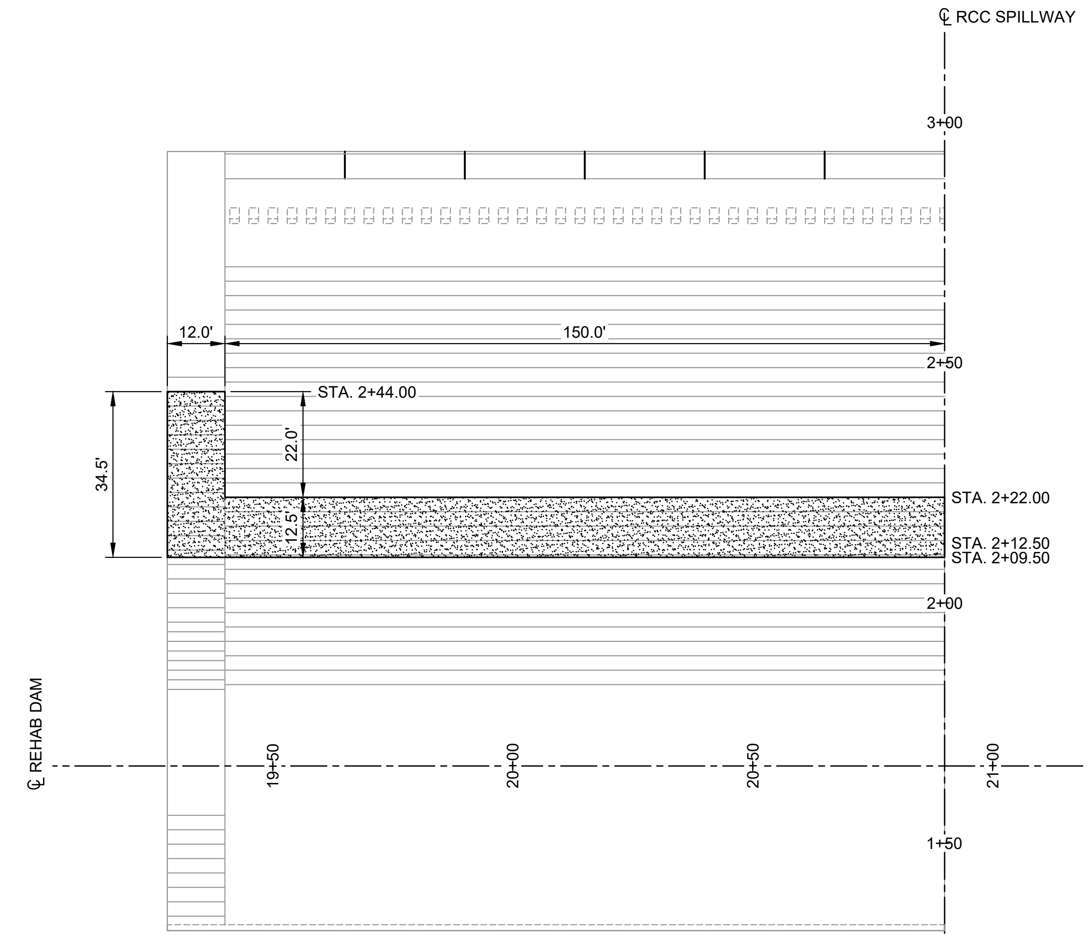
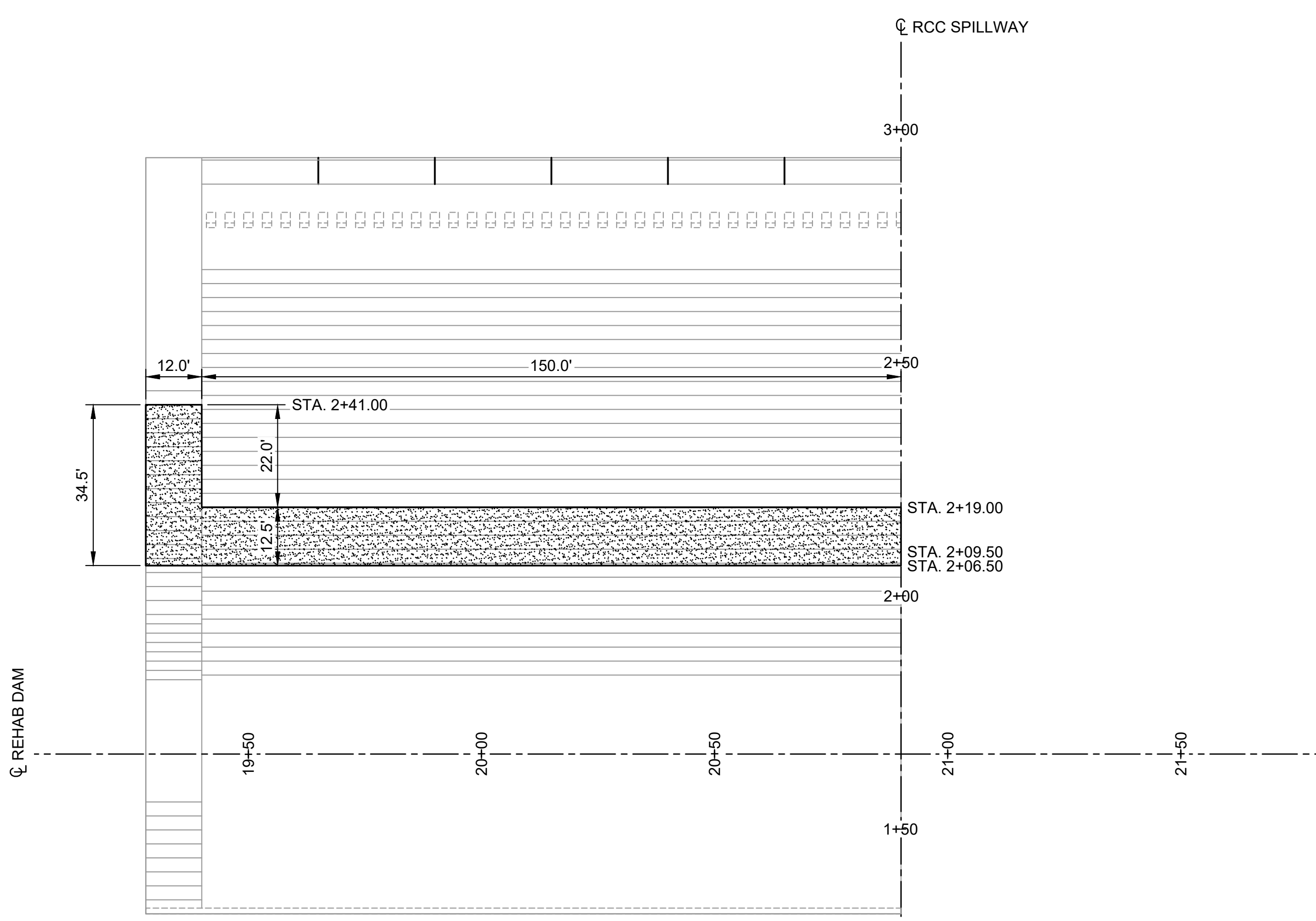


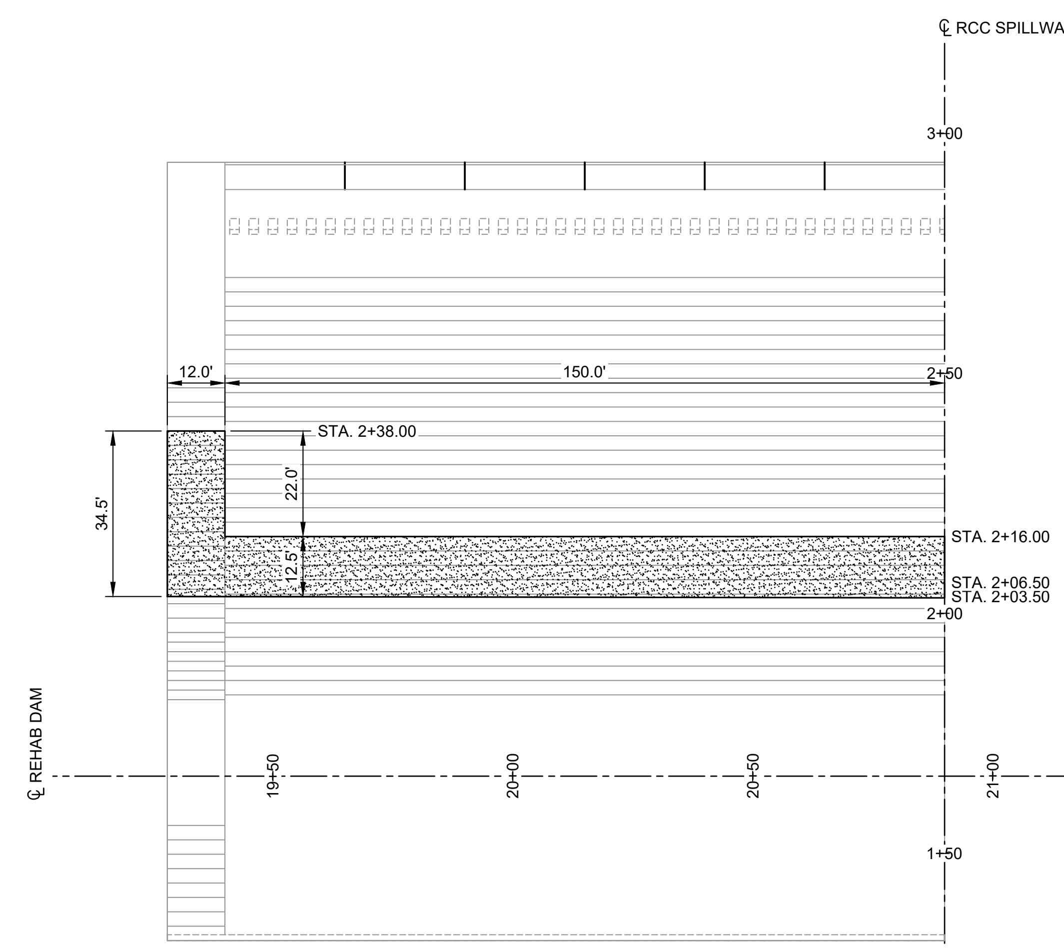
PARTIAL PLAN - RCC LAYER 19 (19) S.G. EL. 503.9 F.G. EL. 504.9



PARTIAL PLAN - RCC LAYER 20 (20) S.G. EL. 504.9 F.G. EL. 505.9



PARTIAL PLAN - RCC LAYER 21 (21) S.G. EL. 505.9 F.G. EL. 506.9



PARTIAL PLAN - RCC LAYER 22 (22) S.G. EL. 506.9 F.G. EL. 507.9

NOTES:

1. ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
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4. S.G. = SUBGRADE; F.G. = FINISHED GRADE

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RCC SPILLWAY LIFT SCHEMATIC (6 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 60
OF 83

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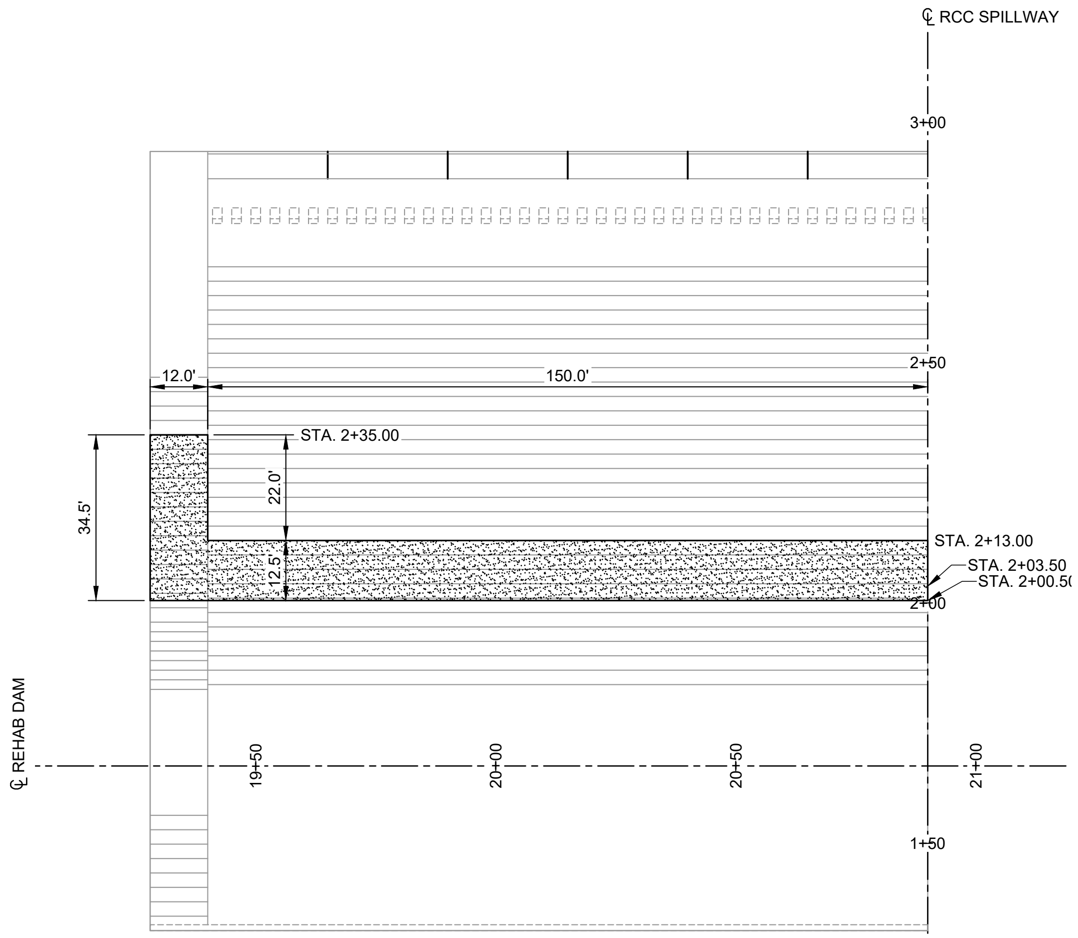
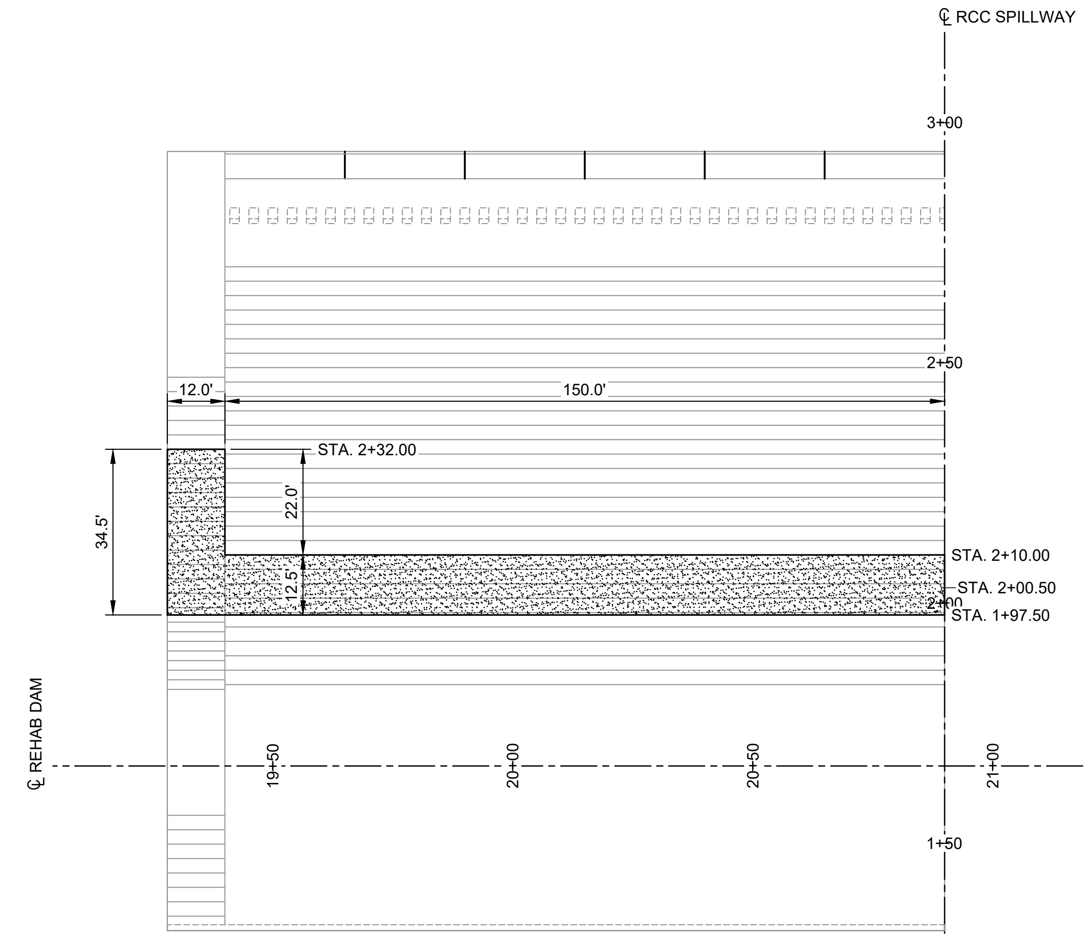
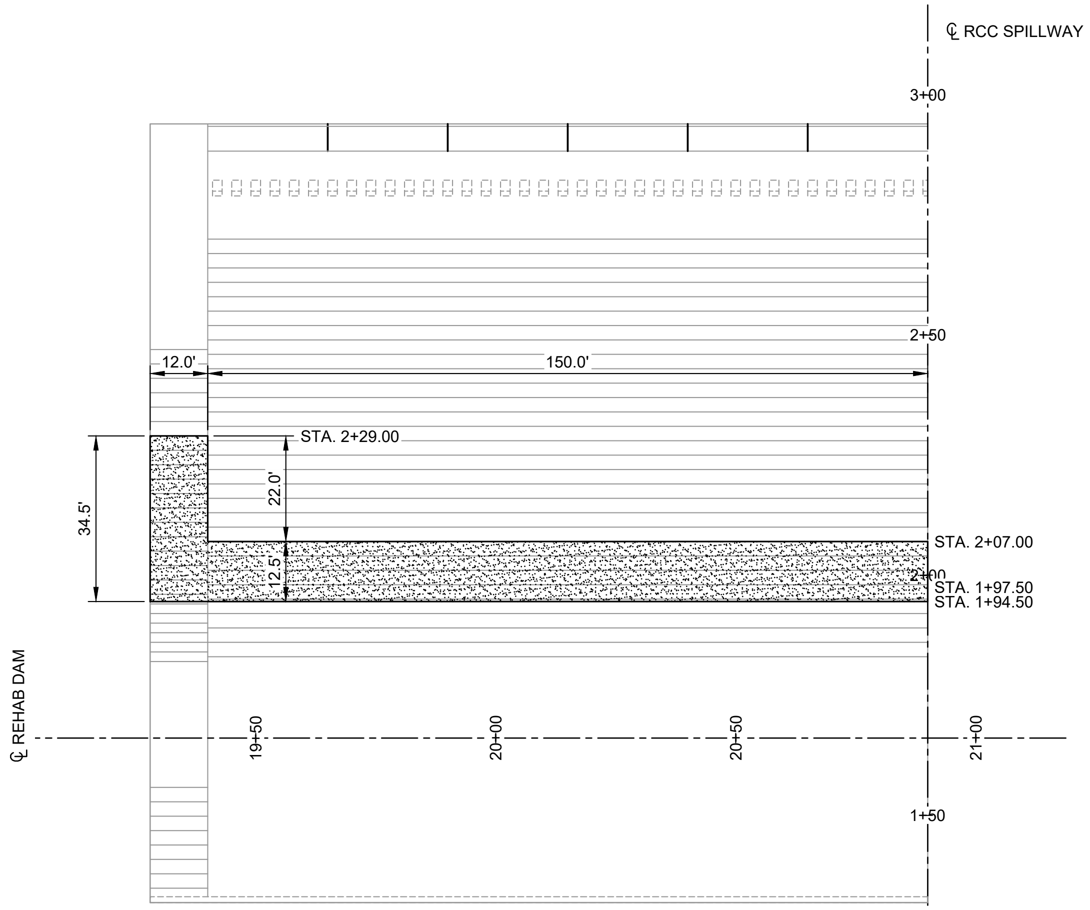


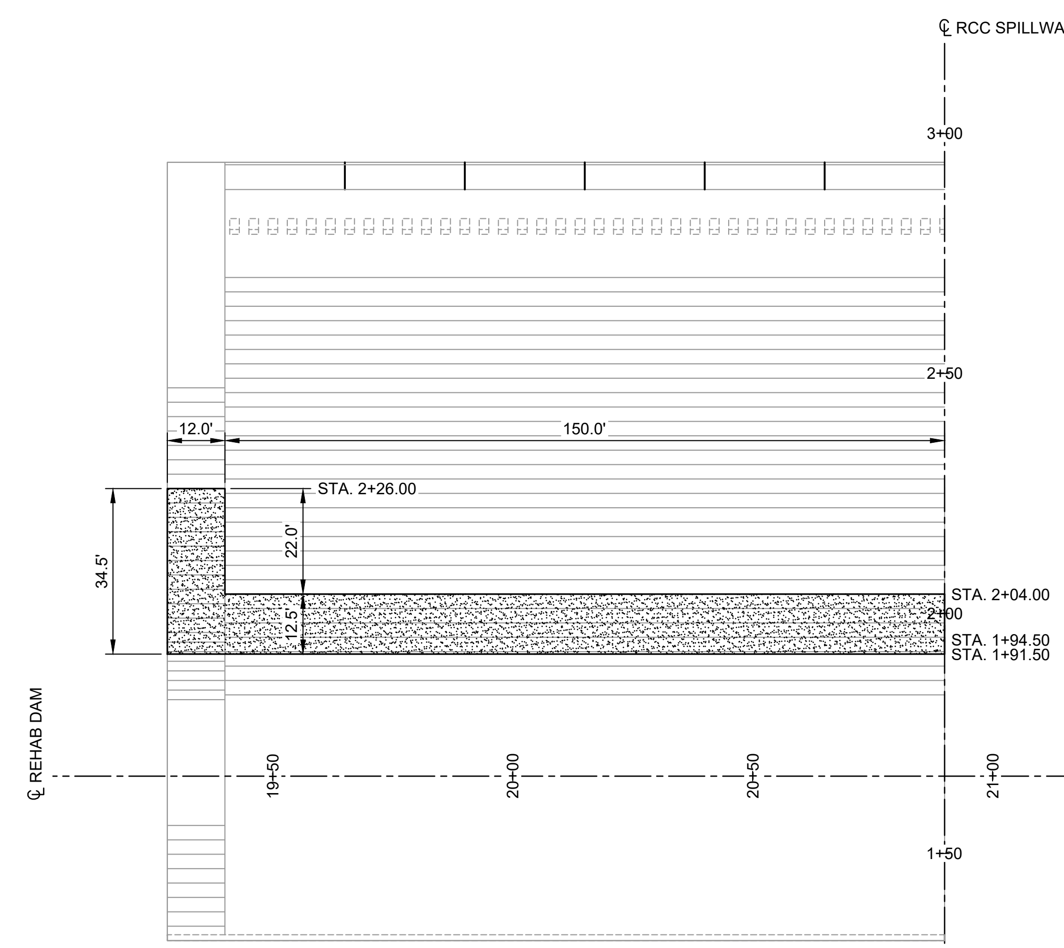
PARTIAL PLAN - RCC LAYER 23 (23) S.G. EL. 507.9 F.G. EL. 508.9



PARTIAL PLAN - RCC LAYER 24 (24) S.G. EL. 508.9 F.G. EL. 509.9



PARTIAL PLAN - RCC LAYER 25 (25) S.G. EL. 509.9 F.G. EL. 510.9



PARTIAL PLAN - RCC LAYER 26 (26) S.G. EL. 510.9 F.G. EL. 511.9

NOTES:

1. ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
3. THE LAYER SEQUENCE SHOWN ON THIS SHEET IS A LOGICAL PROGRESSION FOR THE PLACEMENT OF THE ROLLER COMPACTED CONCRETE FOR THE CONSTRUCTION OF THE R.C.C. CHUTE SPILLWAY. ACTUAL ORDER AND LIMITS MAY VARY ONLY AS PERMITTED BY THE ENGINEER.
4. S.G. = SUBGRADE; F.G. = FINISHED GRADE

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RCC SPILLWAY LIFT SCHEMATIC (7 OF 12)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 61
OF 83

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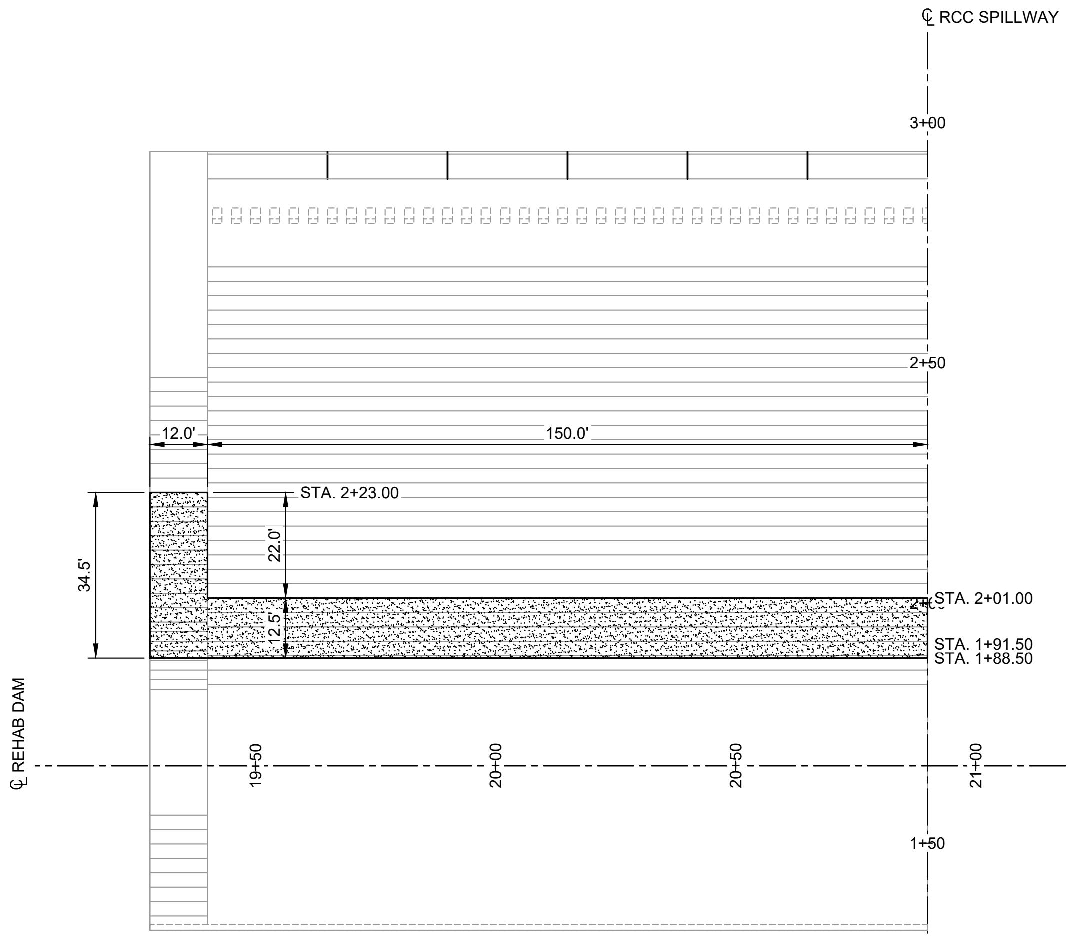
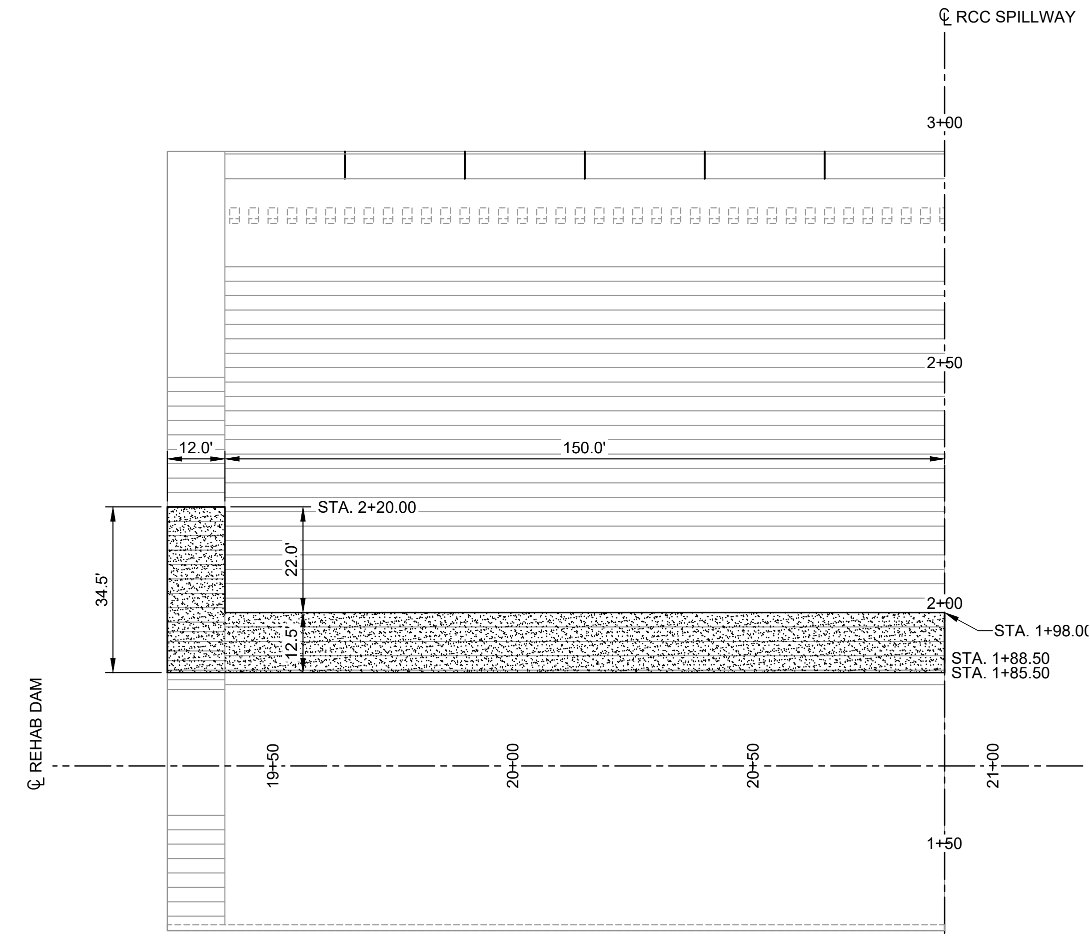
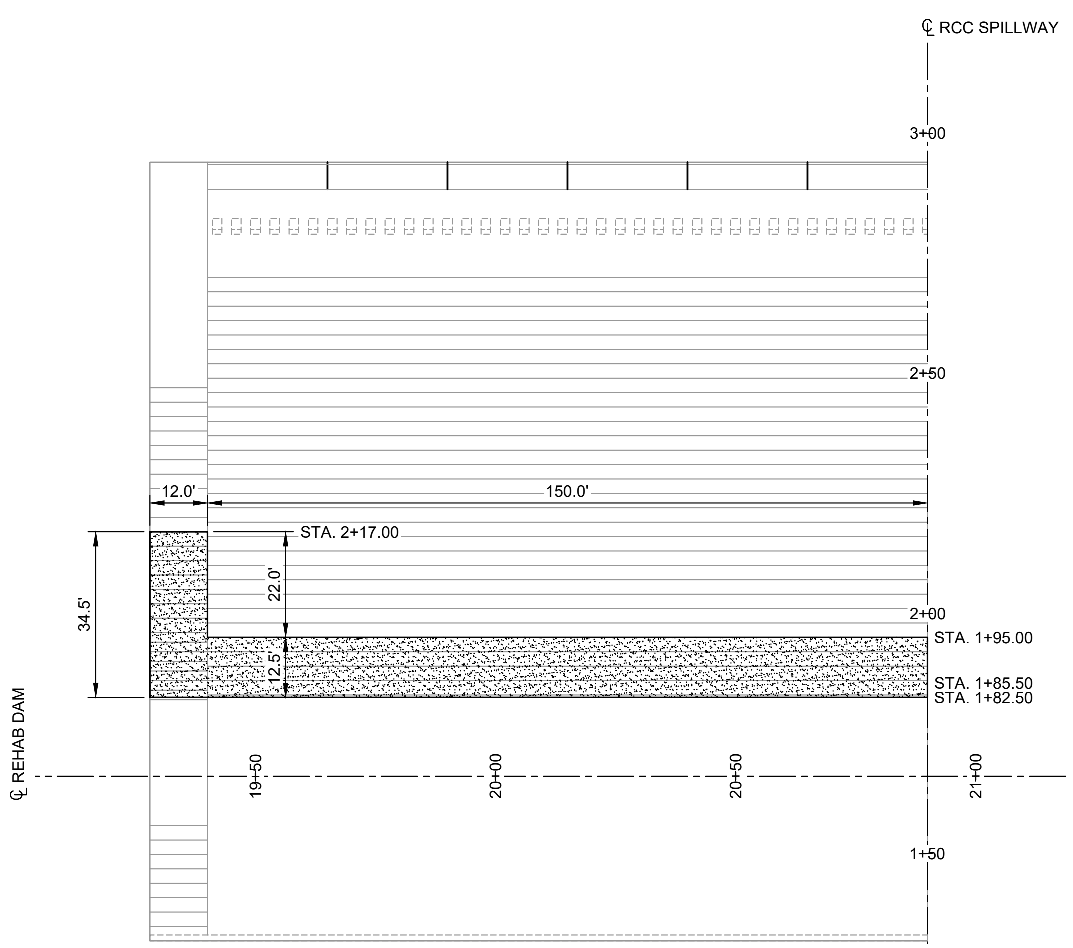


PARTIAL PLAN - RCC LAYER 27 ㉗ S.G. EL. 511.9 F.G. EL. 512.9



PARTIAL PLAN - RCC LAYER 28 ㉘ S.G. EL. 512.9 F.G. EL. 513.9



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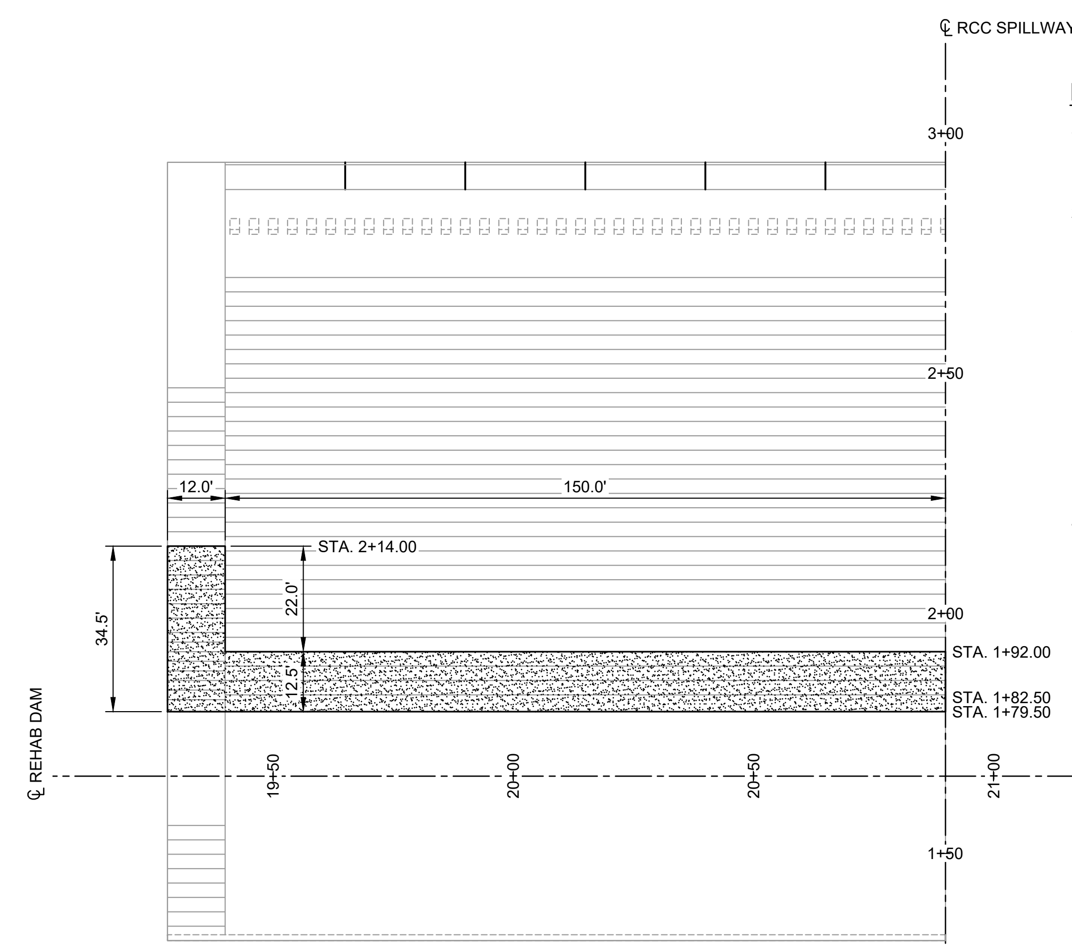

PARTIAL PLAN - RCC LAYER 30 ㉚ S.G. EL. 514.9 F.G. EL. 515.9

NOTES:

1. ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
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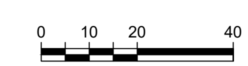
4. S.G. = SUBGRADE; F.G. = FINISHED GRADE



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FILE NAME: Plum 21 – Sht 55–66.dwg
DATE CHECKED: 8/4/2021

RCC SPILLWAY LIFT SCHEMATIC (8 OF 12)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 62
OF 83

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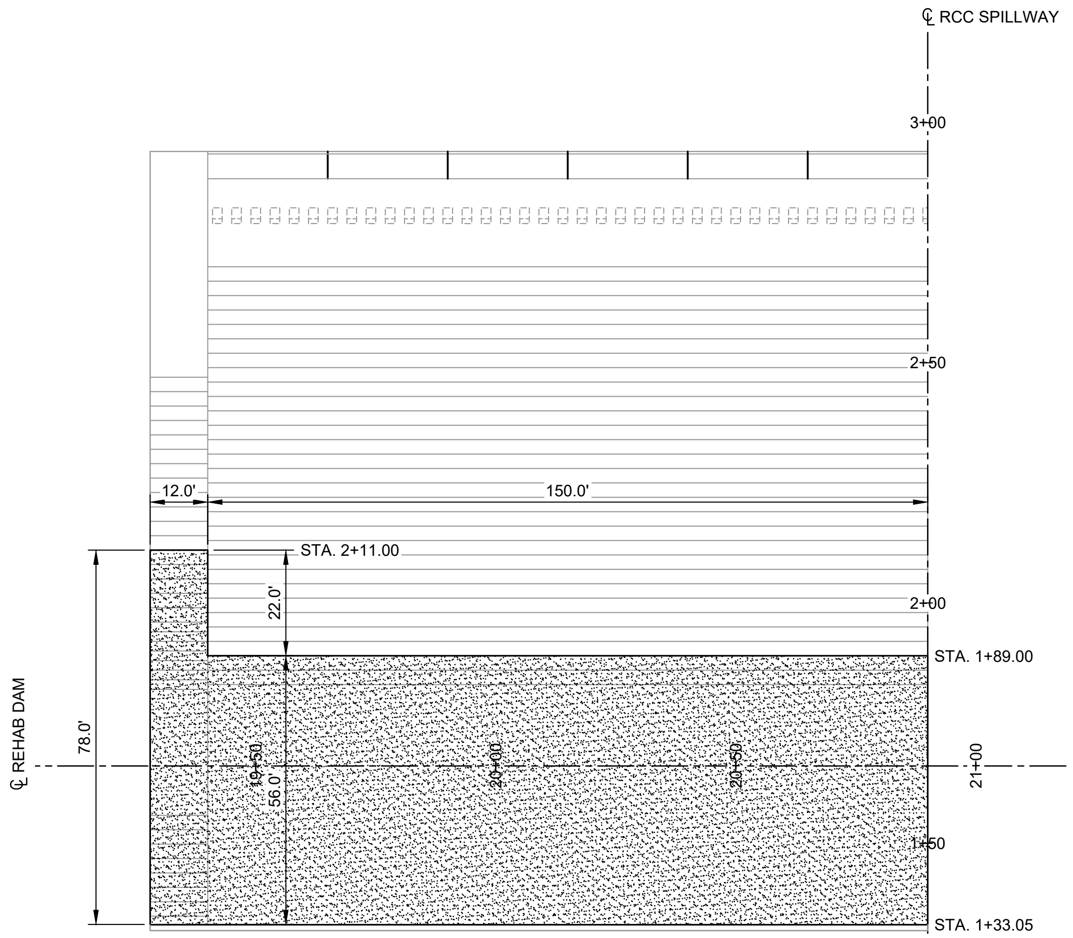
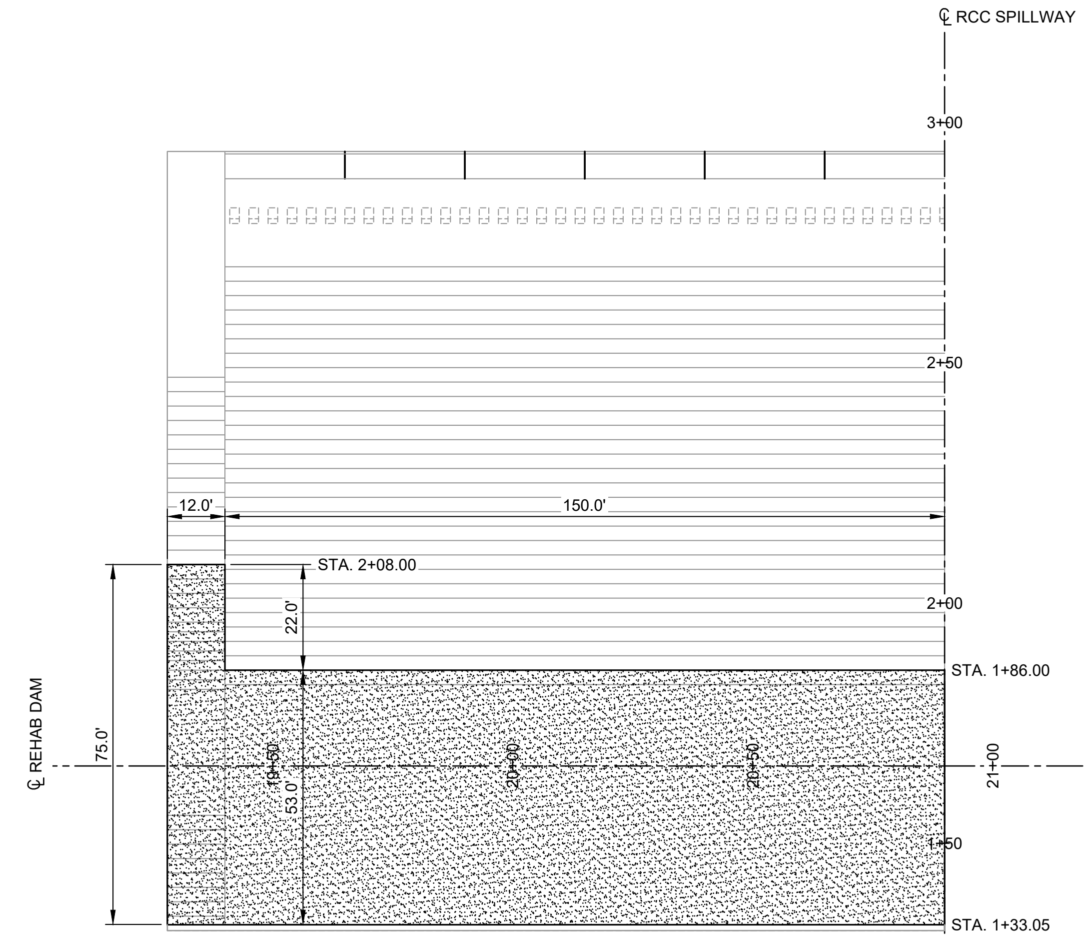


PARTIAL PLAN - RCC LAYER 31 (31) S.G. EL. 515.9 F.G. EL. 516.9



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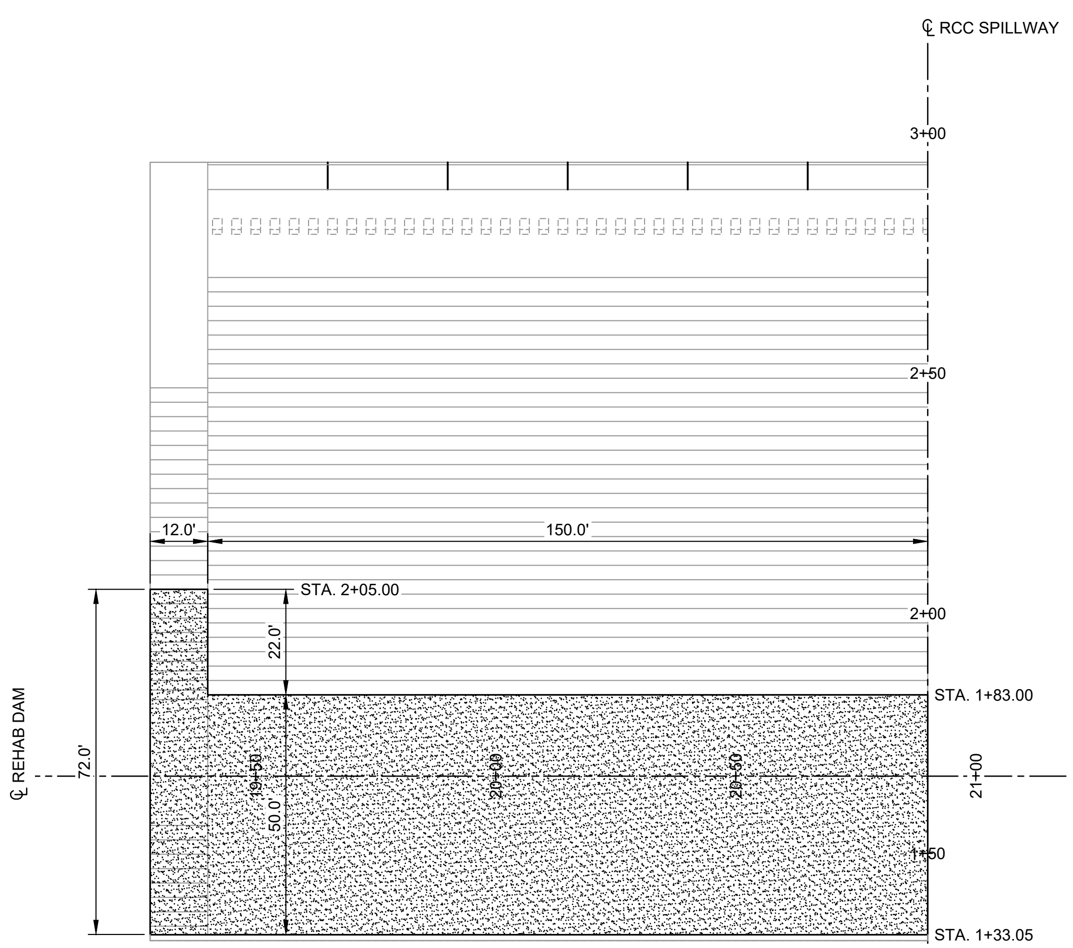
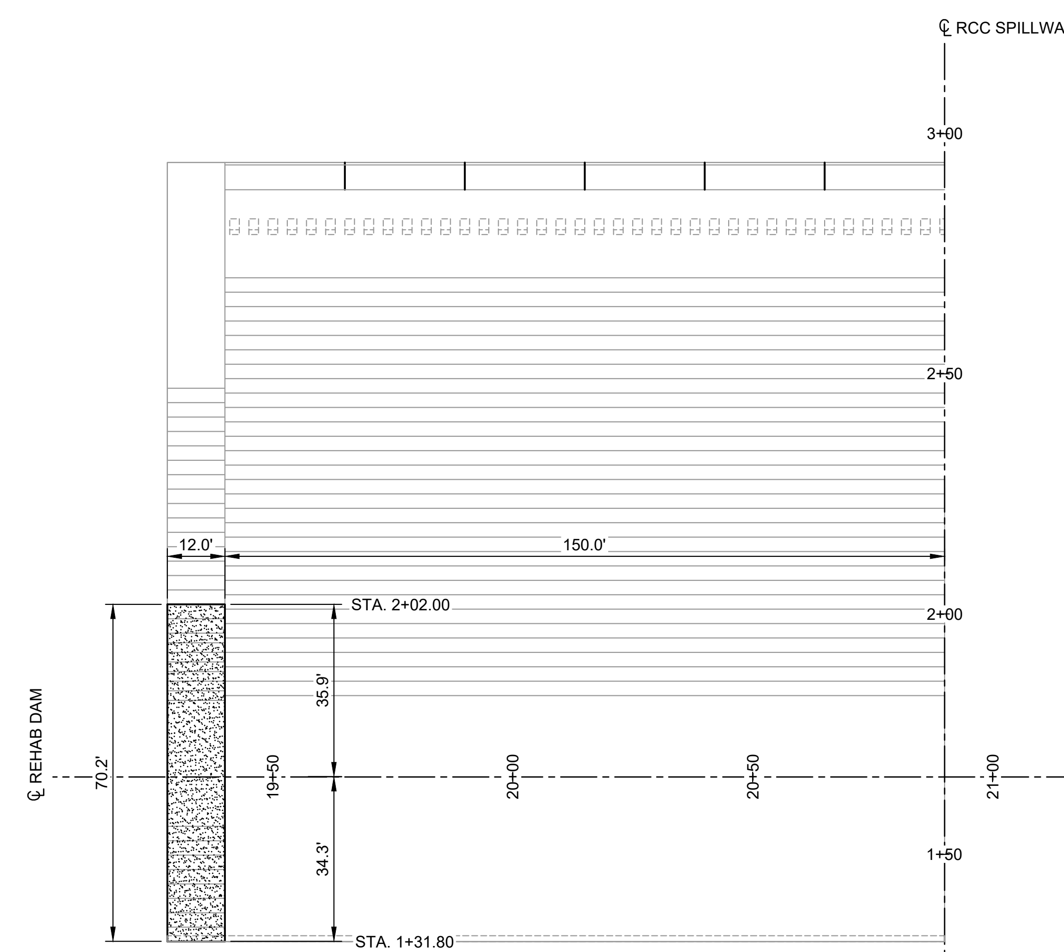


PARTIAL PLAN - RCC LAYER 33 (33) S.G. EL. 517.9 F.G. EL. 518.9



PARTIAL PLAN - RCC LAYER 34 (34) S.G. EL. 518.9 F.G. EL. 519.9

NOTES:

1. ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
3. THE LAYER SEQUENCE SHOWN ON THIS SHEET IS A LOGICAL PROGRESSION FOR THE PLACEMENT OF THE ROLLER COMPACTED CONCRETE FOR THE CONSTRUCTION OF THE R.C.C. CHUTE SPILLWAY. ACTUAL ORDER AND LIMITS MAY VARY ONLY AS PERMITTED BY THE ENGINEER.
4. S.G. = SUBGRADE; F.G. = FINISHED GRADE

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DATE CHECKED: 8/4/2021

RCC SPILLWAY LIFT SCHEMATIC (9 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 63
OF 83

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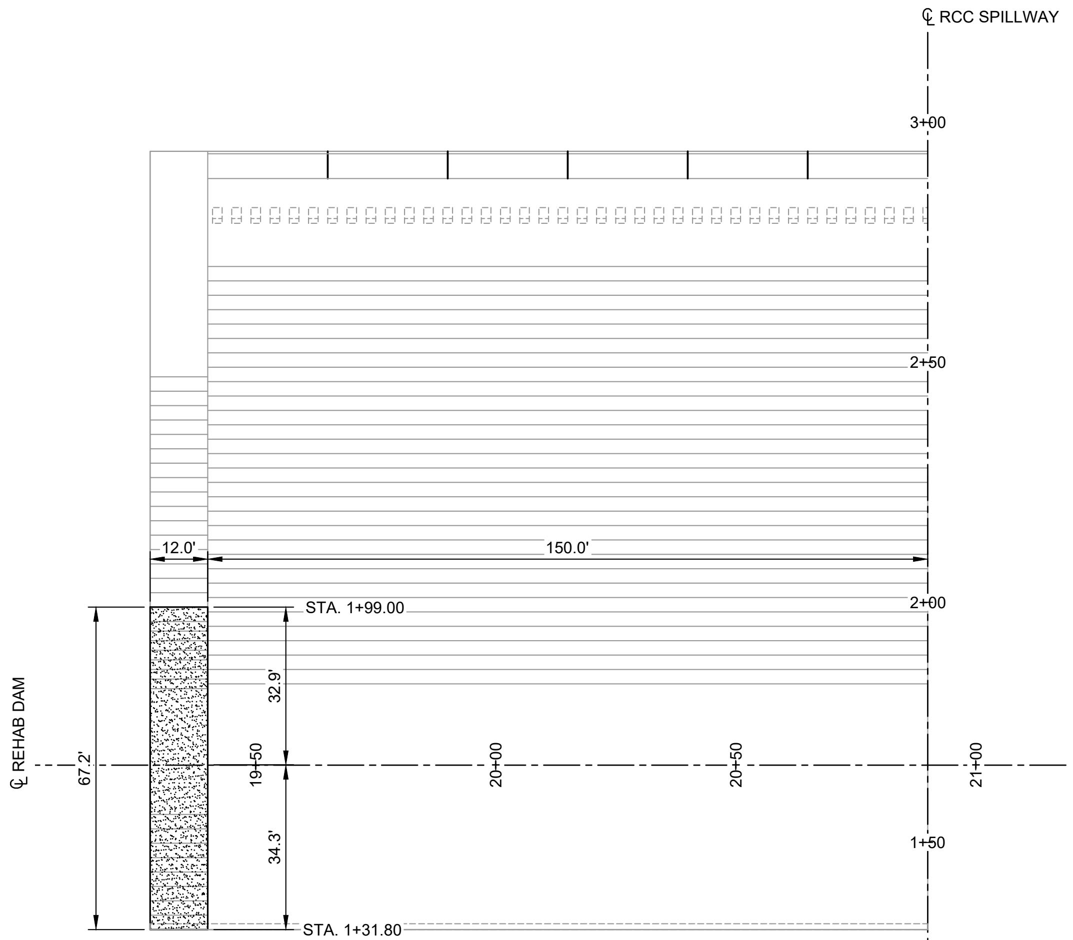
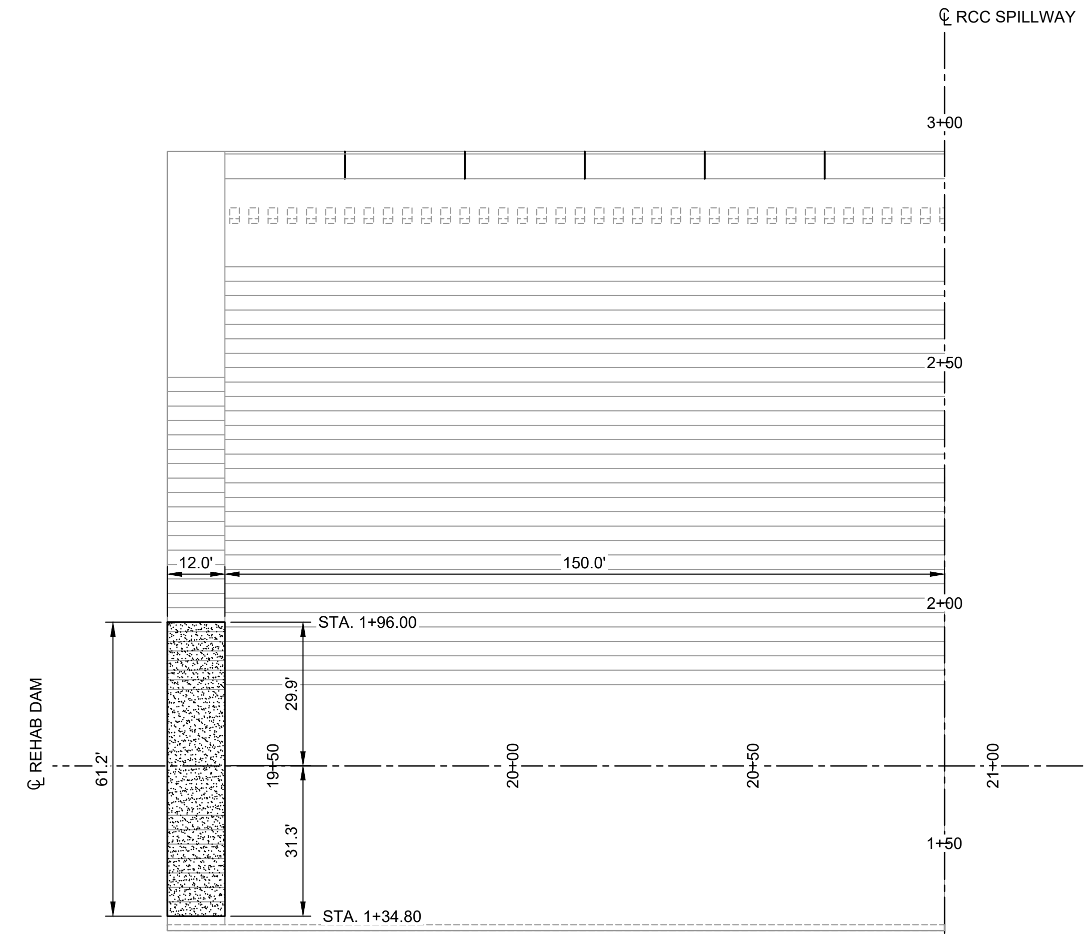
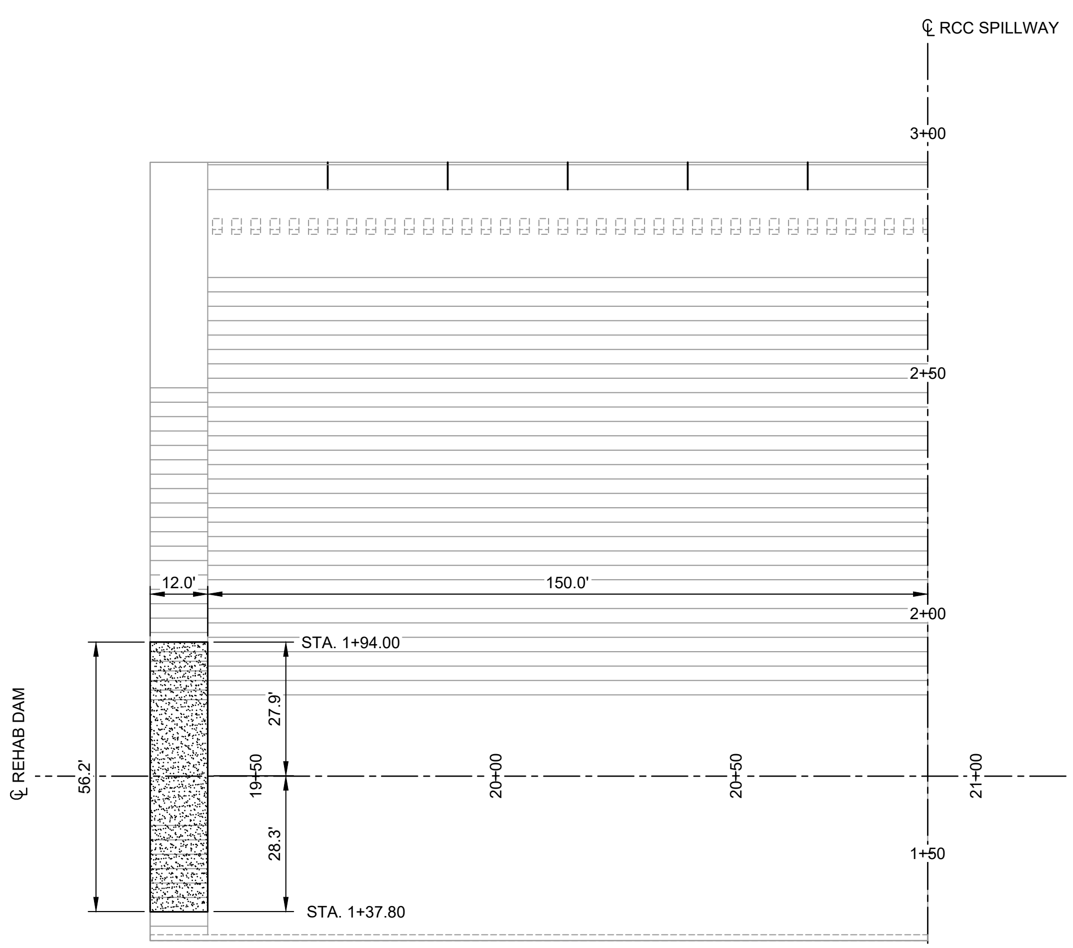


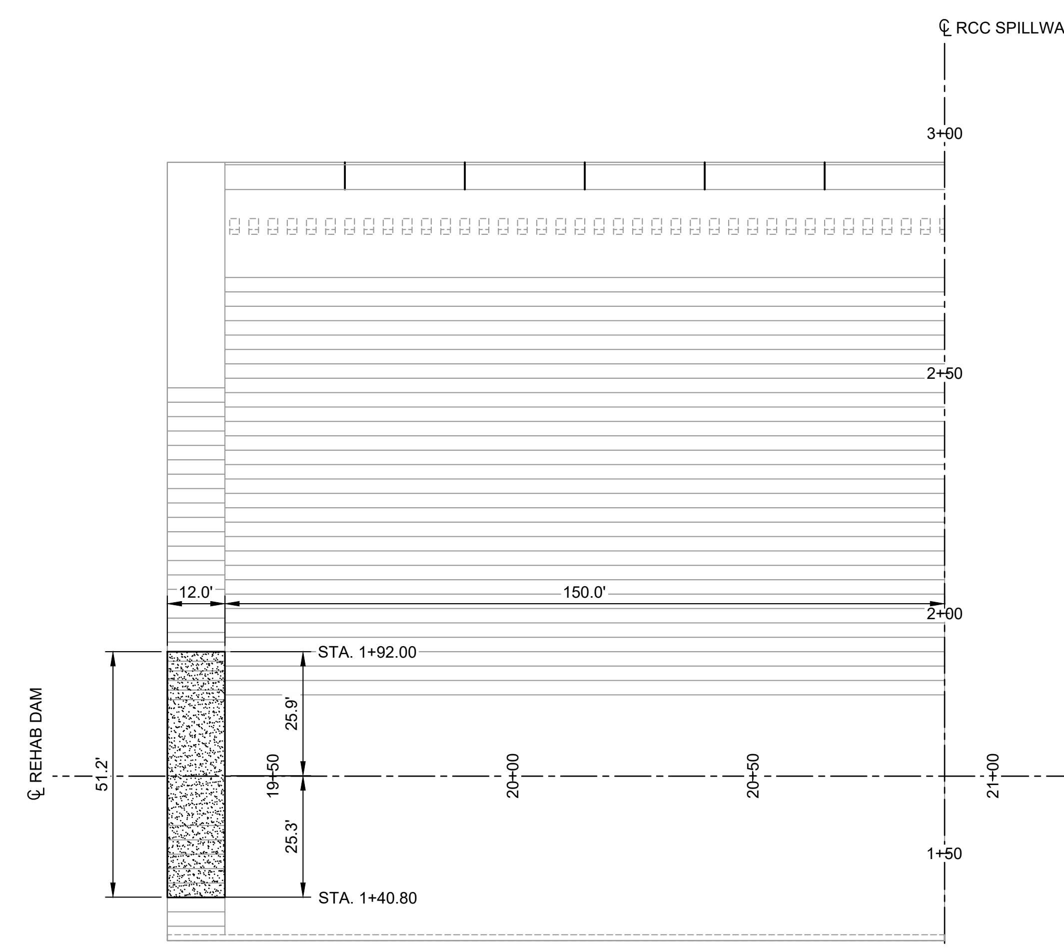
PARTIAL PLAN - RCC LAYER 35 (35) S.G. EL. 519.9 F.G. EL. 520.9



PARTIAL PLAN - RCC LAYER 36 (36) S.G. EL. 520.9 F.G. EL. 521.9



PARTIAL PLAN - RCC LAYER 37 (37) S.G. EL. 521.9 F.G. EL. 522.9



PARTIAL PLAN - RCC LAYER 38 (38) S.G. EL. 522.9 F.G. EL. 523.9

NOTES:

1. ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
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4. S.G. = SUBGRADE; F.G. = FINISHED GRADE

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LANCE T. PINNEROCK 111398 LICENSED PROFESSIONAL ENGINEER 8/4/21

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FILE NAME: Plum 21 – Sht 55–66.dwg
DATE CHECKED: 8/4/2021

RCC SPILLWAY LIFT SCHEMATIC (10 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 64
OF 83

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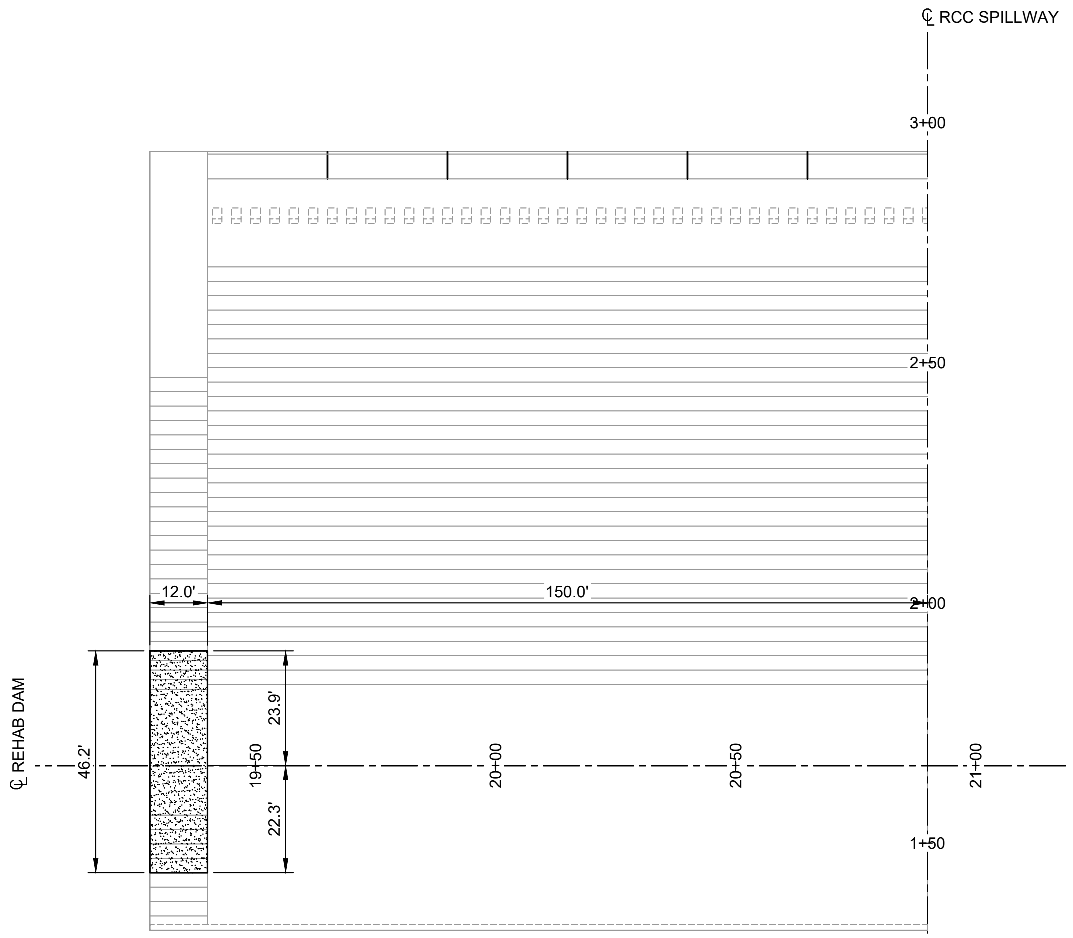
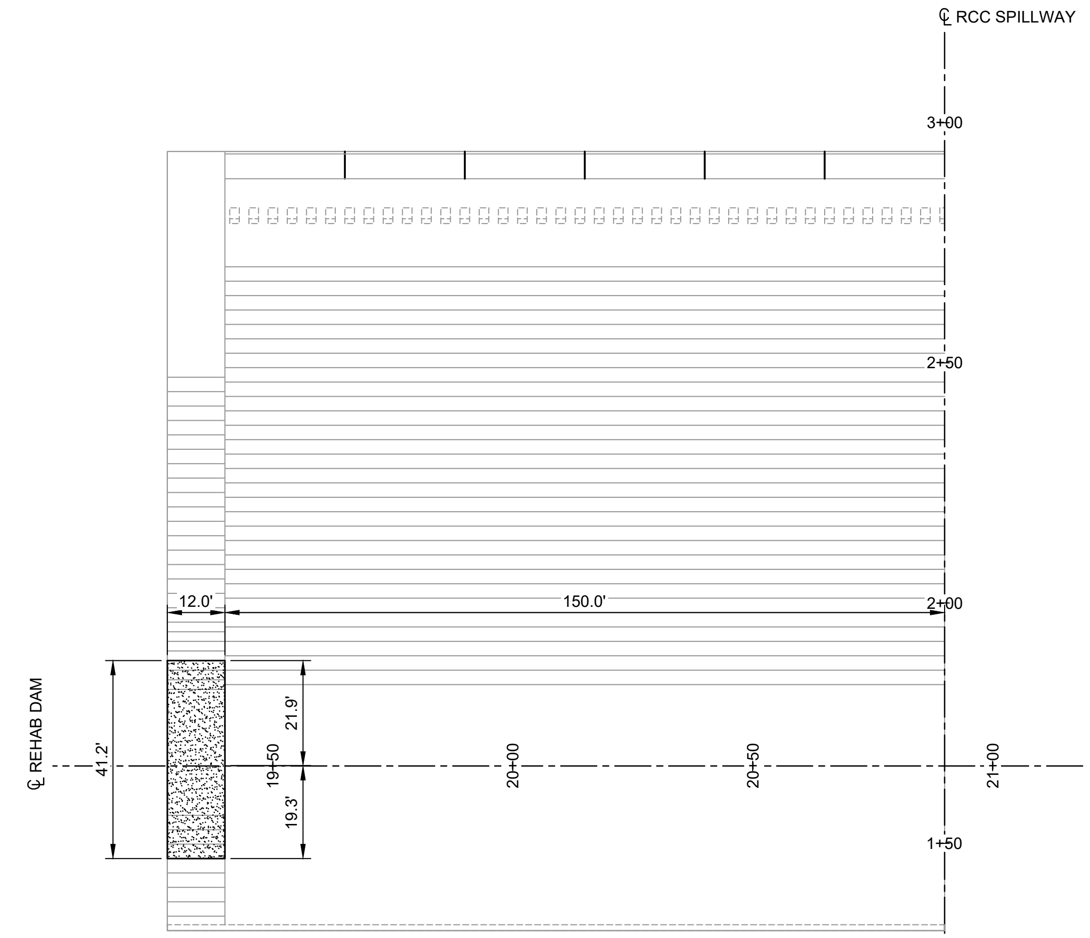
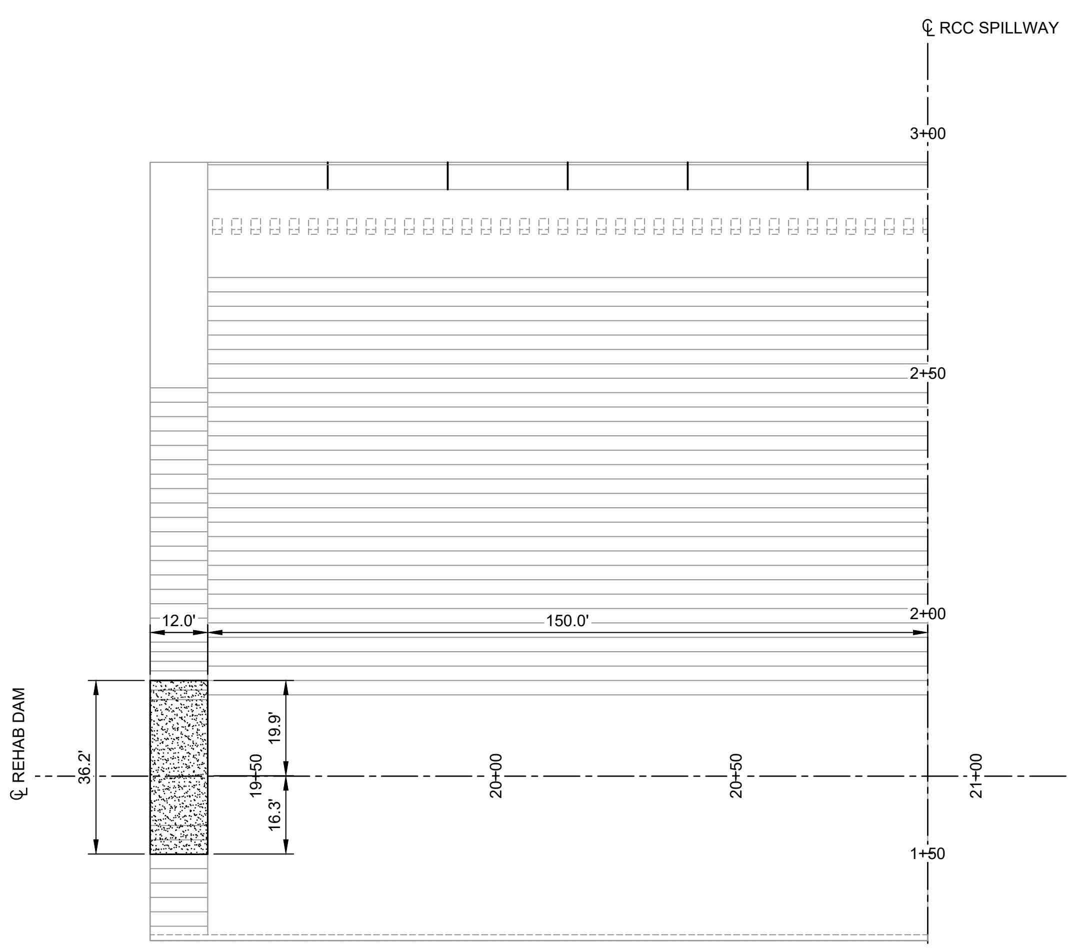


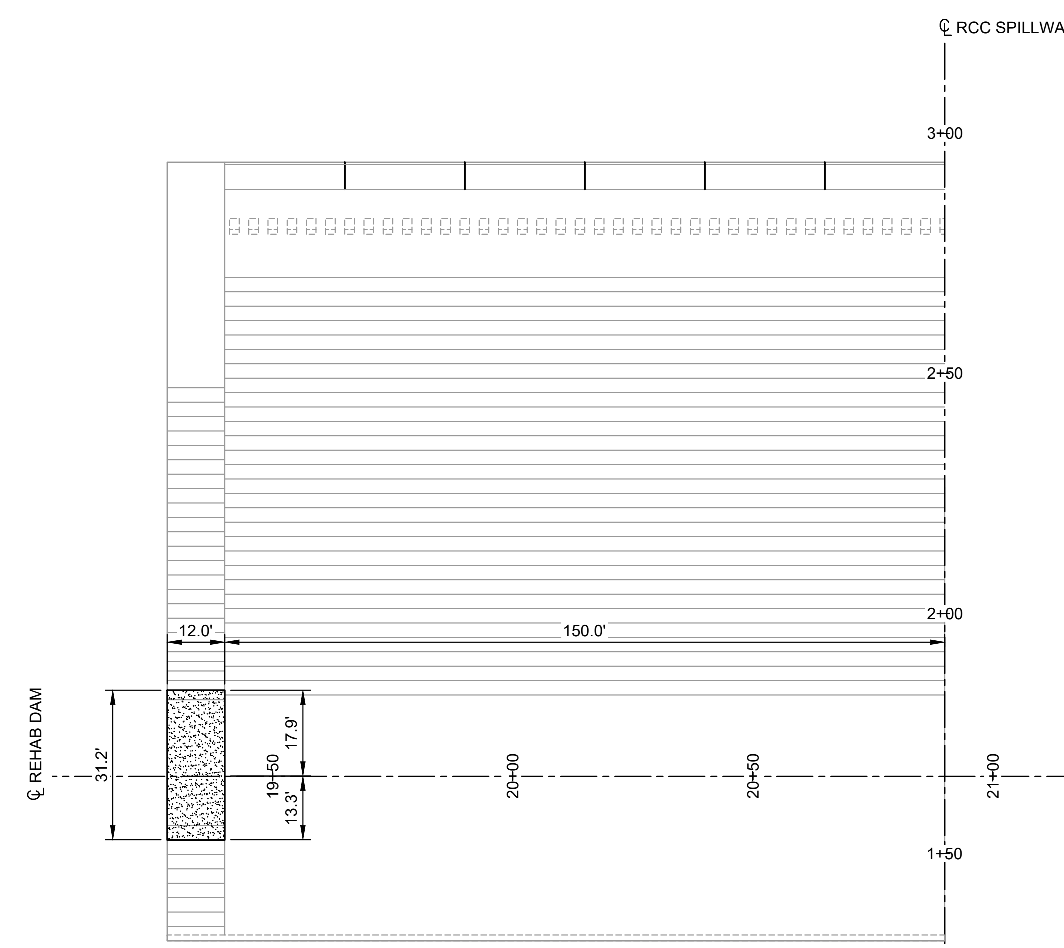
PARTIAL PLAN - RCC LAYER 39 (39) S.G. EL. 523.9 F.G. EL. 524.9



PARTIAL PLAN - RCC LAYER 40 (40) S.G. EL. 524.9 F.G. EL. 525.9



PARTIAL PLAN - RCC LAYER 41 (41) S.G. EL. 525.9 F.G. EL. 526.9



PARTIAL PLAN - RCC LAYER 42 (42) S.G. EL. 526.9 F.G. EL. 527.9

NOTES:

1. ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
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RCC SPILLWAY LIFT SCHEMATIC (11 OF 12)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 65
OF 83

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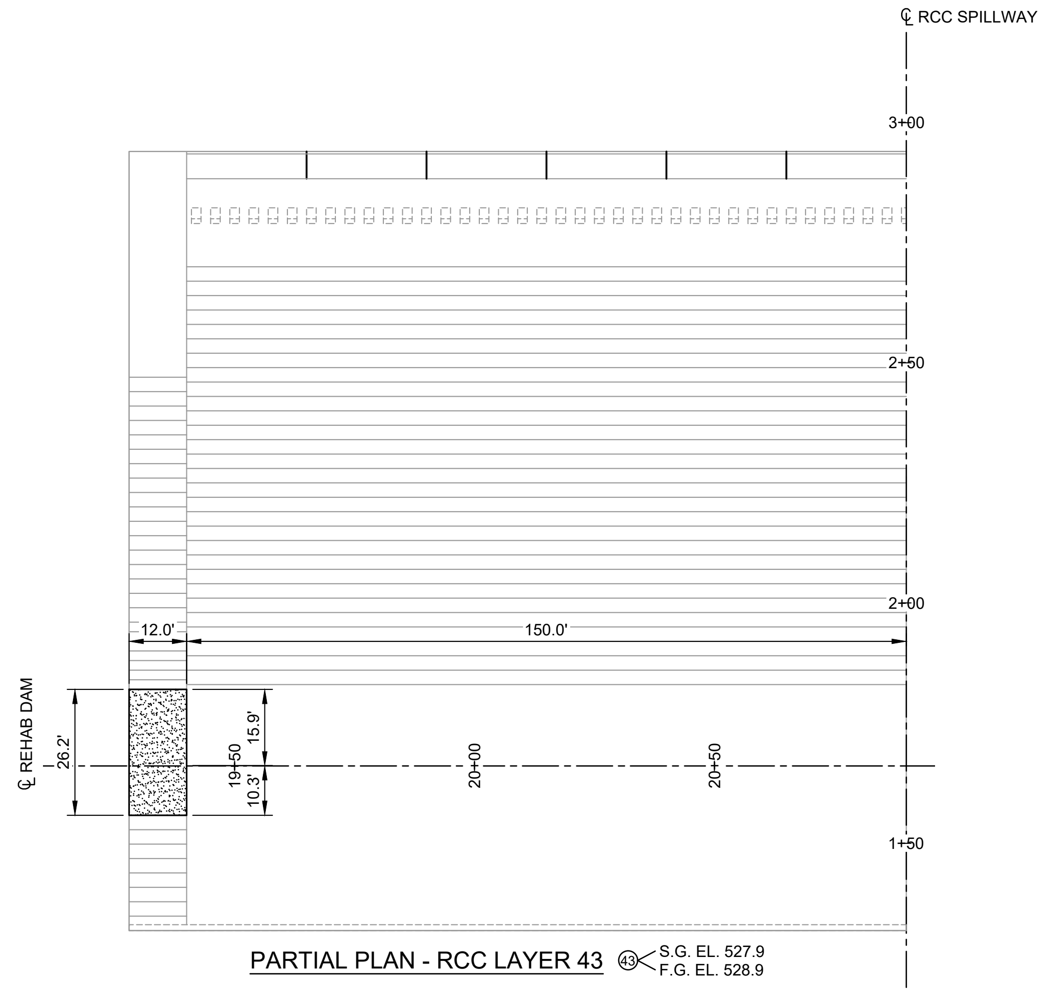

PARTIAL PLAN - RCC LAYER 43 (43) S.G. EL. 527.9 F.G. EL. 528.9

NOTES:

1. ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
3. THE LAYER SEQUENCE SHOWN ON THIS SHEET IS A LOGICAL PROGRESSION FOR THE PLACEMENT OF THE ROLLER COMPACTED CONCRETE FOR THE CONSTRUCTION OF THE R.C.C. CHUTE SPILLWAY. ACTUAL ORDER AND LIMITS MAY VARY ONLY AS PERMITTED BY THE ENGINEER.
4. S.G. = SUBGRADE; F.G. = FINISHED GRADE

0 10 20 40
SCALE IN FEET

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: KNF
DRAWN BY: CAD
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FILE NAME: Plum 21 – Sht 55–66.dwg
DATE CHECKED: 8/4/2021

RCC SPILLWAY LIFT SCHEMATIC (12 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 66
OF 83

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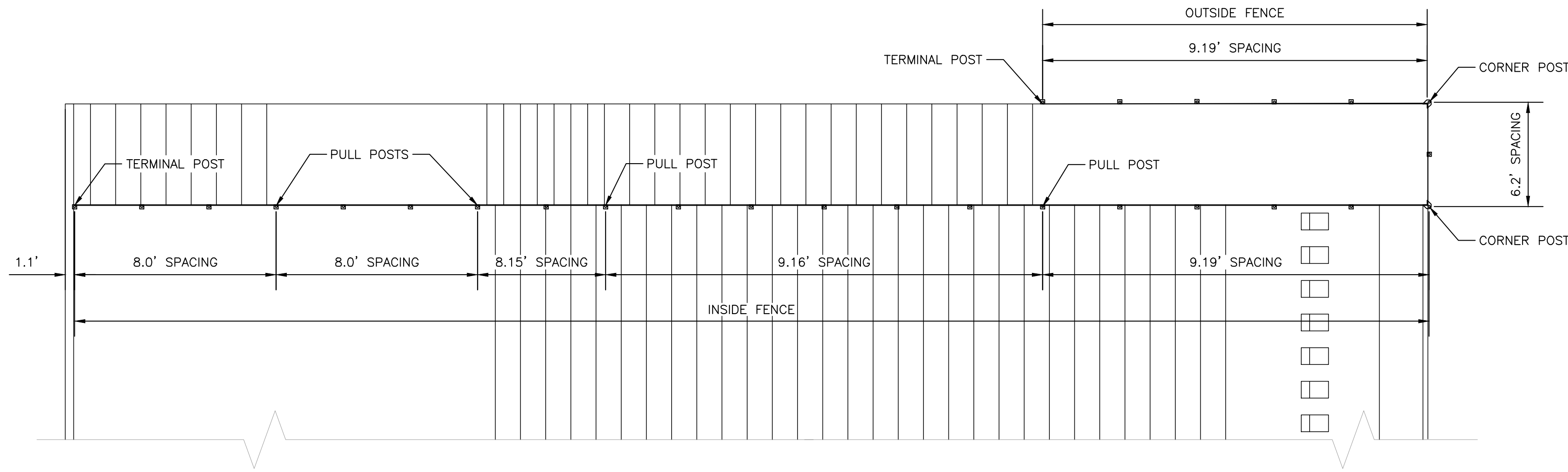
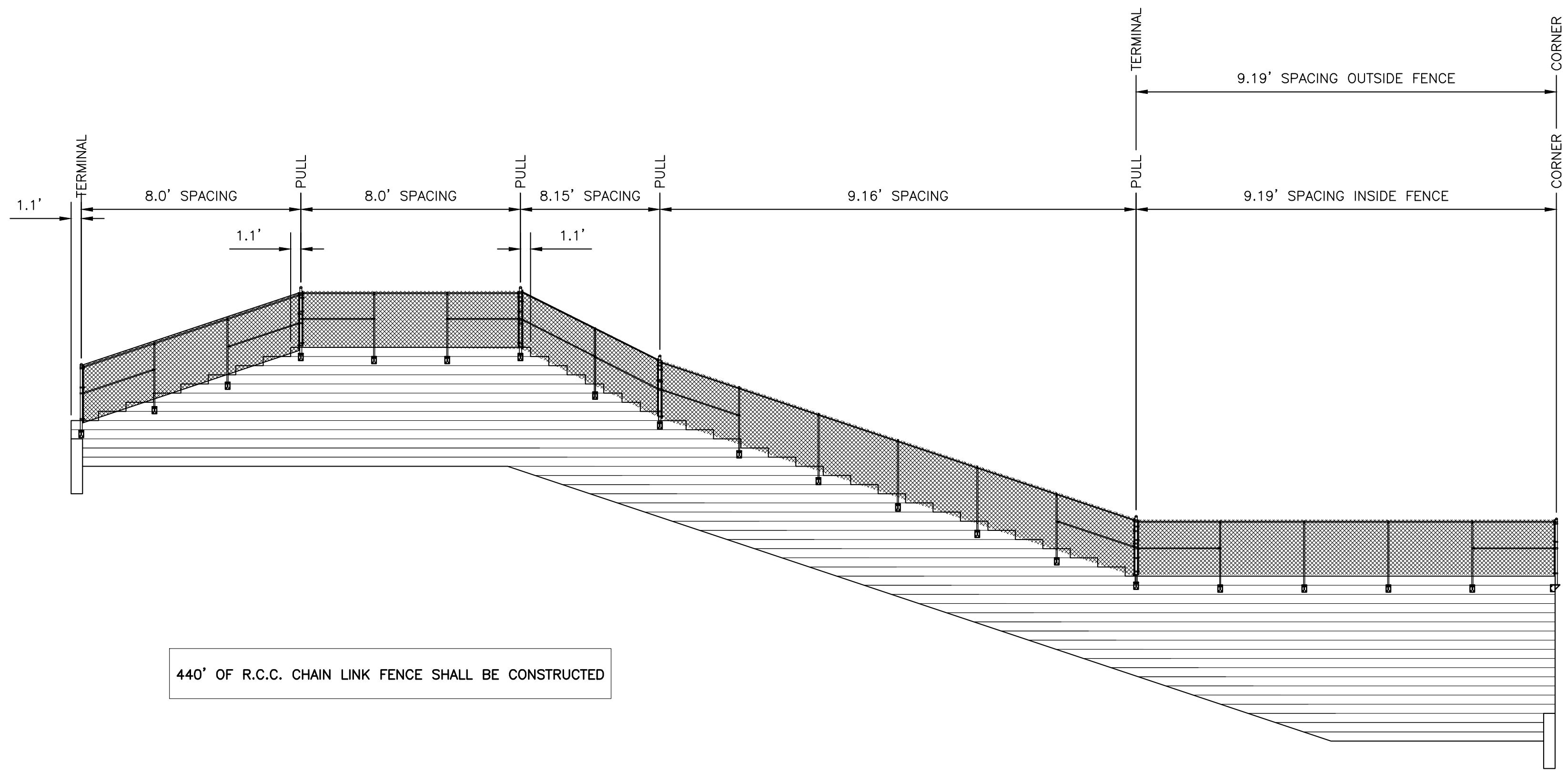


RCC SPILLWAY FENCE – PARTIAL PLAN (LEFT WALL SHOWN)

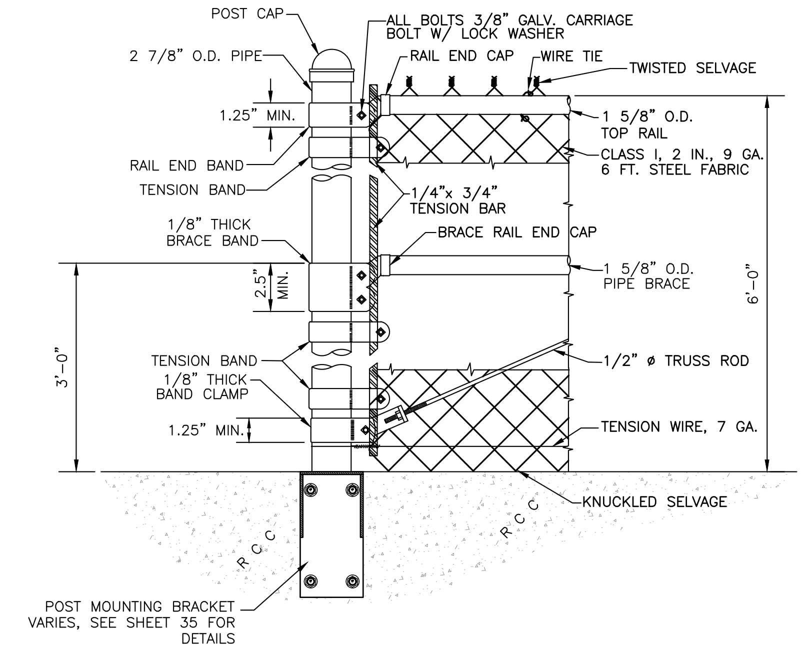
RCC FENCING IS SYMMETRICAL ABOUT SPILLWAY CENTERLINE – RIGHT WALL FENCING IS OPPOSITE HAND OF LEFT WALL
SCALE AS SHOWN



440' OF R.C.C. CHAIN LINK FENCE SHALL BE CONSTRUCTED

RCC SPILLWAY FENCE – INSIDE FENCE ELEVATION (LEFT WALL SHOWN)

SCALE AS SHOWN
(1:1 H:V)

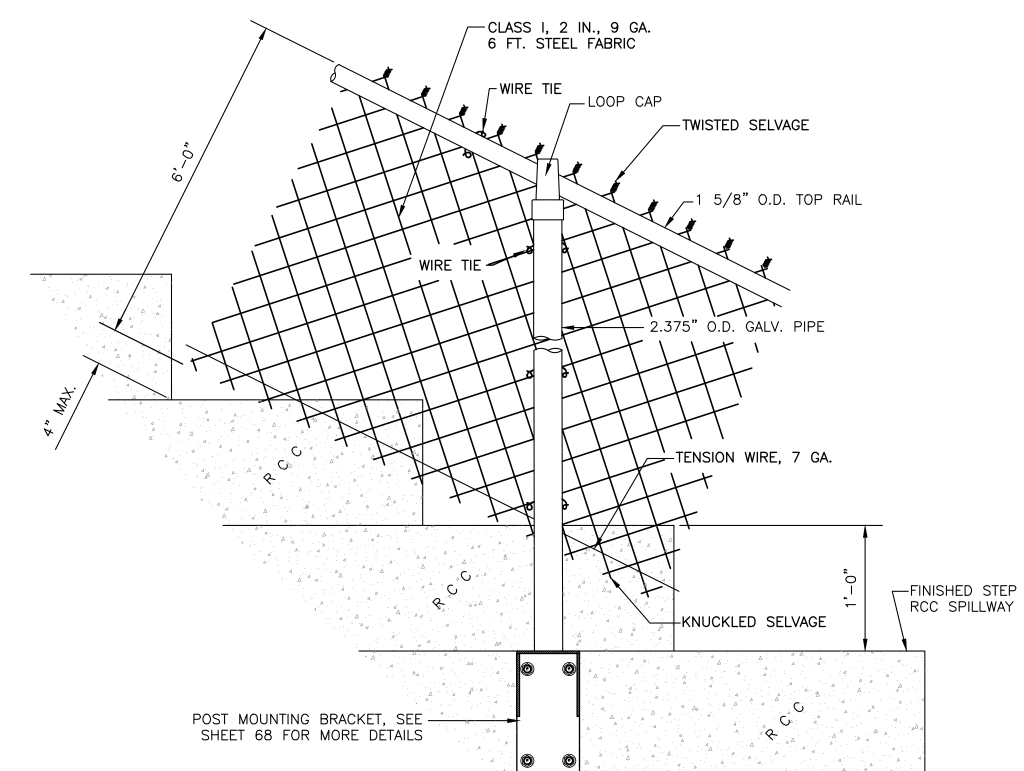


POST DETAIL

(CORNER, PULL & TERMINAL POST)
(NOT TO SCALE)

NOTES:

1. WIRE TIES SHALL HAVE MAX. SPACING OF 24 INCHES ON TOP RAIL AND 12 INCHES ON LINE POSTS.
2. TIE WIRE SHALL BE MIN. 9 GAGE STEEL GALV. WIRE.
3. FOUR (4) 12 GA. TENSION BANDS SHALL BE USED PER TENSION BAR.
4. TENSION WIRE SHALL BE MARCELLED (SPIRAL OR CRIMP) #7 GAGE AS PER ASTM A 824, TYPE II ZINC–COAT CLASS 2.
5. FENCE FABRIC SHALL BE PLACED BETWEEN THE INSTALLED POSTS AND THE R.C.C.
6. FINAL FENCE LAYOUT SHALL BE APPROVED BY THE ENGINEER.



LINE POST DETAIL

(NOT TO SCALE)

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: KNF
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FILE NAME: Plum 21 – Sht 65_68.dwg
DATE CHECKED: 8/4/2021

RCC SPILLWAY FENCE DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 67
OF 83

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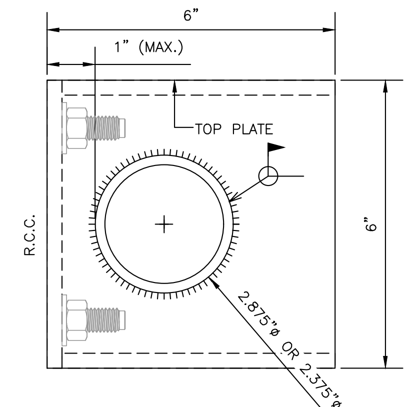
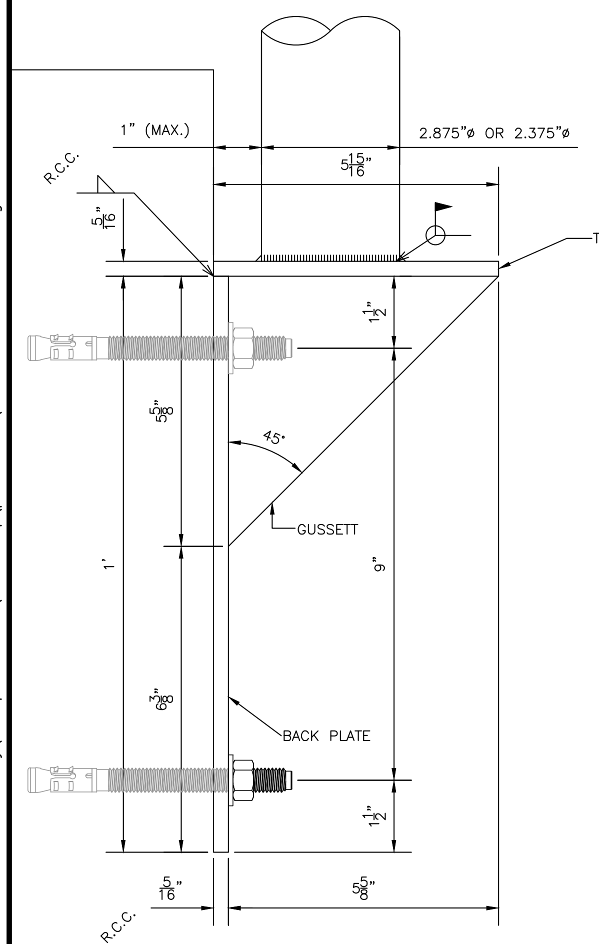
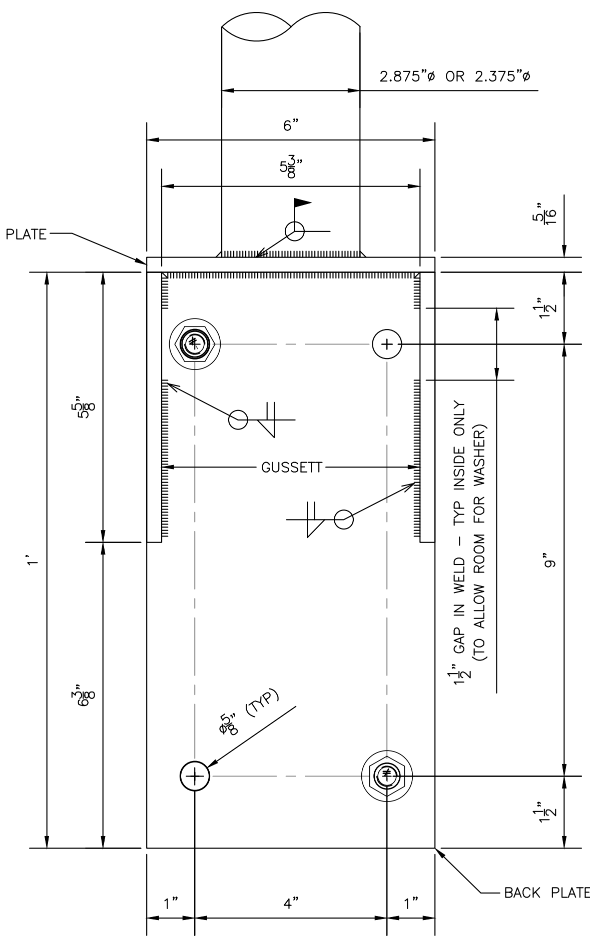
NOTES:
1. FOR 2.375"ø O.D. LINE POST, THE SAME BRACKET SHALL BE USED AS SHOWN IN POST MOUNTING BRACKET.
2. BOTH 2.875"ø AND 2.375"ø POSTS SHALL BE MOUNTED TO ALLOW A MAXIMUM OF 1" FREE SPACE BETWEEN THE RCC SIDEWALL AND THE POST TO ALLOW FOR PLACEMENT OF THE CHAINLINK FENCE AND ITS ASSOCIATED APPURTENANCES.
3. BOTH 2.875"ø AND 2.375"ø POSTS SHALL BE SCHEDULE 40, REGULAR GRADE.
4. ALL PARTS OF MOUNTING BRACKETS SHALL BE GALVANIZED AFTER FABRICATION (SEE MATERIAL SPECIFICATION 582).



PLAN VIEW



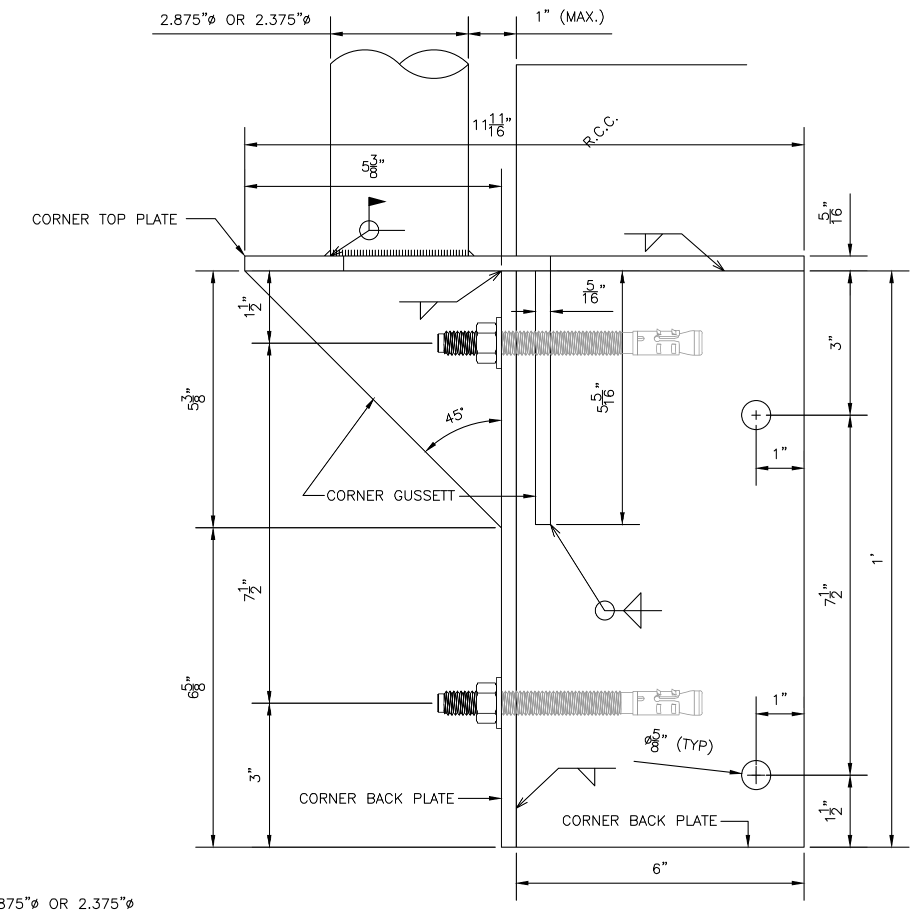
SIDE VIEW



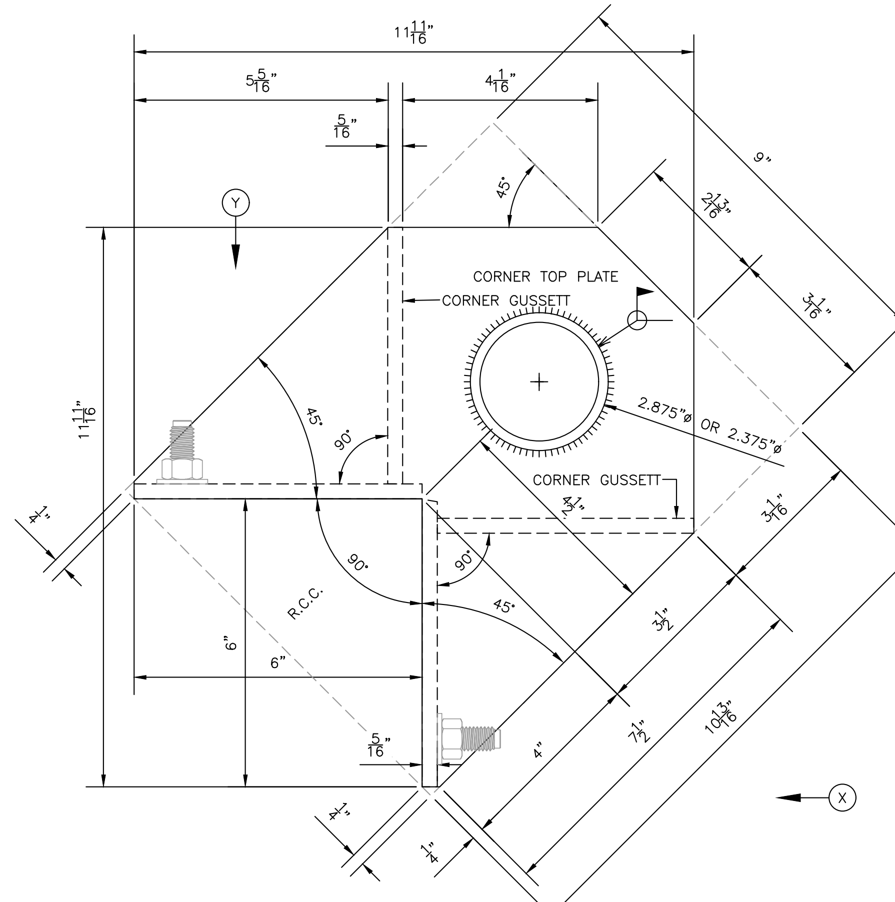
FRONT ELEVATION VIEW

POST MOUNTING BRACKET

(LINE, PULL & TERMINAL POST)
NOT TO SCALE
BRACKET STEEL SHALL BE 5/16" THICK
(54 REQUIRED)



SIDE VIEW – Y DIRECTION



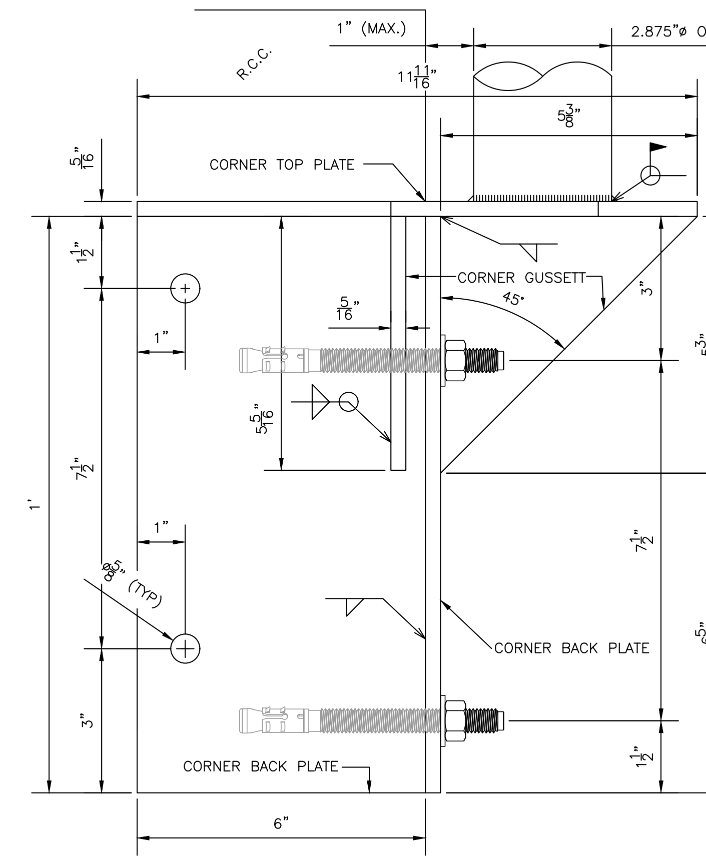
PLAN VIEW

ESTIMATED BILL OF MATERIALS – R.C.C. FENCE	
114'-8"	2.875" O.D. TUBULAR STEEL PIPE FOR CORNER POST (CUT INTO (16) – 7'-2" POSTS)
273'-4"	2.375" O.D. TUBULAR STEEL PIPE FOR ONE LINE POST (CUT (CUT INTO (40) – 6'-10" POSTS)
480'-0"	1 5/8" O.D. TUBULAR STEEL PIPE FOR TOP RAIL (CUT AS REQUIRED)
232'-0"	1 5/8" O.D. TUBULAR STEEL PIPE FOR BRACE RAIL (CUT AS REQUIRED)
484'-0"	6'-0" HIGH CHAIN LINK FABRIC (SELVAGE SHALL BE TWISTED AT THE TOP AND KNUCKLED AT THE BOTTOM)
26	STRETCHER BARS
78	STRETCHER BANDS
16	DOME POST CAPS (2.875")
40	LOOP CAPS FOR LINE POST TOP RAIL (2.375")
26	TRUSS RODS
52	TRUSS BAND CLAMP
28	1 5/8" TOP RAIL END CAPS
56	1 5/8" PIPE BRACE RAIL END CAPS
56	1 5/8" PIPE BRACE CLAMP
500'-0"	7 GAGE GALVANIZED TENSION WIRE (ESTIMATED)
54	POST MOUNTING BRACKET
4	CORNER MOUNTING BRACKET
232	ANCHOR BOLTS WITH WASHERS AND NUTS

NOTE: QUANTITY OF TIE WIRE REQUIRED NOT INCLUDED IN TABLE ABOVE.

FOR TYPE AND SPECIFICATIONS OF FENCING MATERIALS SEE CONSTRUCTION SPECIFICATION 91.

ALL ANCHOR BOLTS SHALL BE SIMPSON STRONG–TIE STRONG–BOLT™ 2 – 1/2"ø x 5 1/2" (NOMINAL) WITH MINIMUM 3 3/8" EFFECTIVE EMBEDMENT OR APPROVED EQUIVALENT



SIDE VIEW – X DIRECTION

CORNER POST MOUNTING BRACKET

(CORNER POST)
NOT TO SCALE
BRACKET STEEL SHALL BE 5/16" THICK
(4 REQUIRED)

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: KNF
DRAWN BY: CAD
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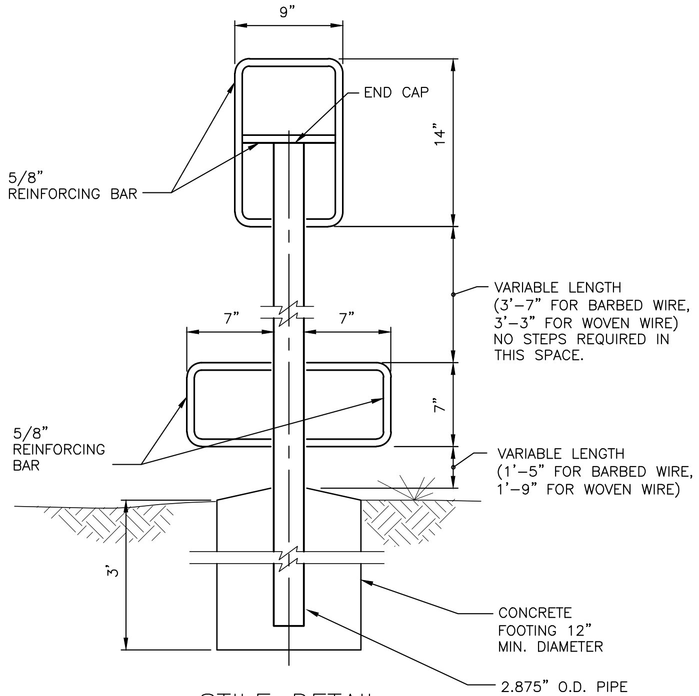
FILE NAME: Plum 21 – Sht 65_68.dwg
DATE CHECKED: 8/4/2021

RCC SPILLWAY FENCE BRACKETS AND DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 68
OF 83



STILE DETAIL

NOT TO SCALE

(ONE (1) REQUIRED)

NOTE:

POSITION STILE SO THAT STEPS AND HANDLE ARE PERPENDICULAR TO ALIGNMENT OF FENCE.

ALL BAR BENDS SHOWN SHALL HAVE AN INSIDE RADIUS OF APPROX. 1 ½"

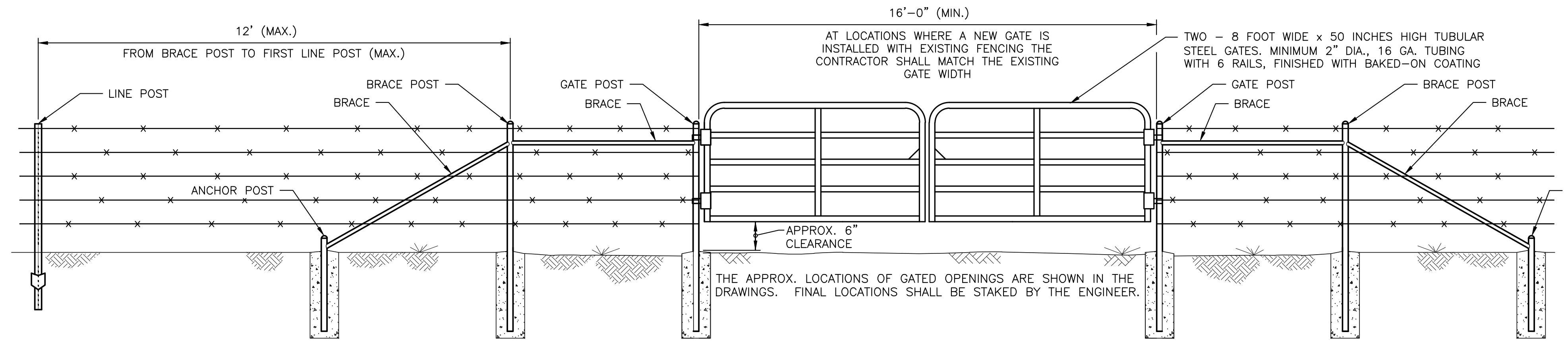
PIPE FOR STILE SHALL BE 2.875" O.D. SCHEDULE 40 STEEL PIPE.

ALL BAR CONNECTIONS SHALL HAVE ALL AROUND FILLET WELD.

ATTACH END CAP TO PIPE WITH ALL AROUND WELD, AND BAR TO END CAP BY WELDING BOTH SIDES.

GALVANIZE STILE AFTER FABRICATION.

STILE LOCATION WILL BE DESIGNATED BY THE ENGINEER DURING FENCE LAYOUT.



NOTE: IN LIEU OF TWO 8-FOOT GATES ONE 16-FOOT WIDE GATE MAY BE USED.

16' GATE OPENING

NOT TO SCALE

(SIX (6) OPENINGS REQUIRED)

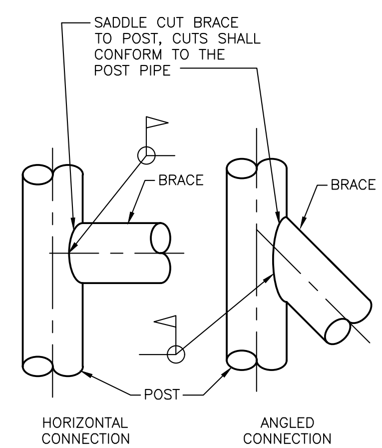
TEE POSTS SHALL MEET THE REQUIREMENTS OF ASTM A702 WITH TWO COATS OF PAINT. ALL LINE POST SHALL BE THE SAME COLOR.

PIPE POSTS AND BRACES SHALL MEET THE REQUIREMENTS OF ASTM A500 OR ASTM A53, EXCEPT SECTION B, HYDROSTATIC TEST SHALL NOT APPLY.

GALVANIZATION OF GATE/CORNER POSTS, BRACE POSTS, ANCHOR POSTS, BRACES, AND CAPS SHALL NOT BE REQUIRED.

GATE POSTS, CORNER POSTS, BRACE POSTS, ANCHOR POSTS, AND PULL POSTS SHALL BE 2.875" O.D.

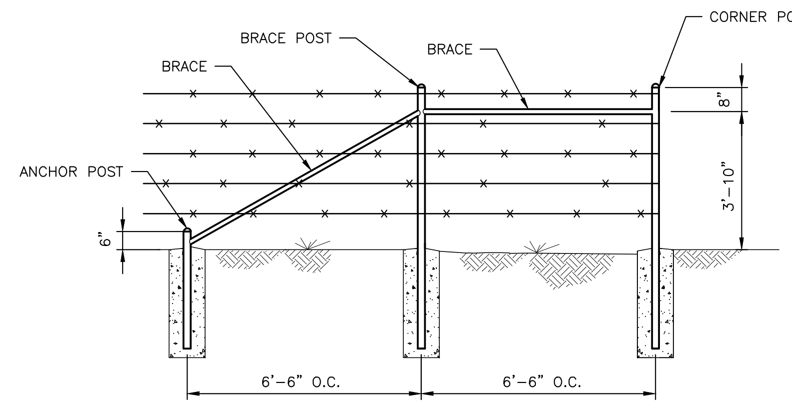
BRACES AND LINE POSTS SHALL BE MIN. 2.375" O.D.. ALL POSTS AND BRACES SHALL BE SCHEDULE 40 PIPE.



ELEVATION VIEW

POST DETAILS

NOT TO SCALE

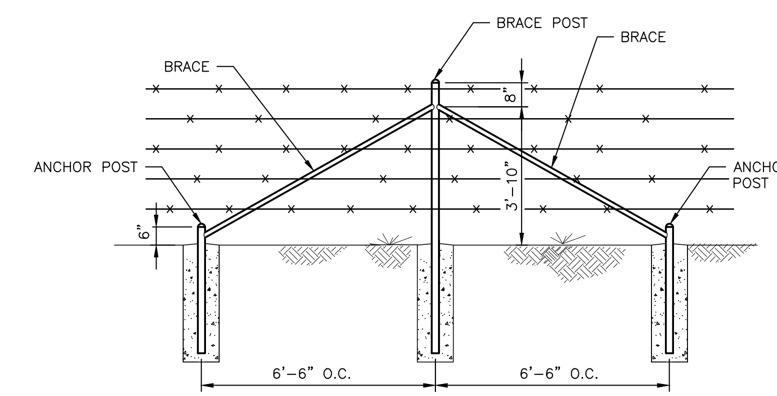


CORNER PANEL

NOT TO SCALE

PULL PANEL NOTE:

1. AS AN OPTION, A CORNER PANEL ASSEMBLY MAY BE USED AS A PULL PANEL IF AN ADDITIONAL DIAGONAL BRACE AND ANCHOR POST ARE ADDED TO THE CORNER POST IN OPPOSITION TO THE DIAGONAL BRACE SHOWN. THE ORIENTATION OF THE NEW DIAGONAL BRACE AND ANCHOR POST SHALL BE WITHIN THE PLANE OF PULL OF THE CONSTRUCTED FENCELINE.

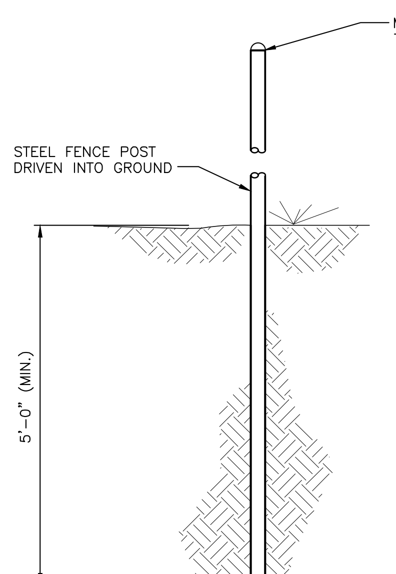


PULL PANEL

NOT TO SCALE

DRIVE EMBEDMENT NOTES:

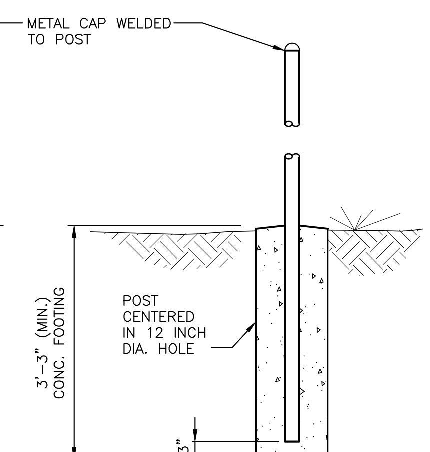
1. DRIVE STEEL CORNER, BRACE, AND GATE POSTS TO THE MINIMUM DEPTH SHOWN.
2. IN THE EVENT THAT DRIVING OPERATIONS DO NOT ACHIEVE THE MINIMUM DEPTH SHOWN, THE POST SHALL BE REMOVED AND REPLACED IN ACCORDANCE WITH THE CONCRETE EMBEDMENT OPTION DETAIL.
3. AT CHANGES IN VERTICAL ALIGNMENT, SUCH AS CROSSING OF STUB DIVERSIONS, LINE POSTS OR PULL PANEL POSTS THAT RESTRAIN UPWARD PULL OF THE FENCE STRANDS SHALL BE ANCHORED BY SETTING SUCH POST IN 18" OF CONCRETE. THE ENGINEER WILL DESIGNATE THE LOCATIONS WHERE THIS ANCHORAGE TREATMENT IS REQUIRED.



DRIVE EMBEDMENT OPTION

DETAIL

NOT TO SCALE



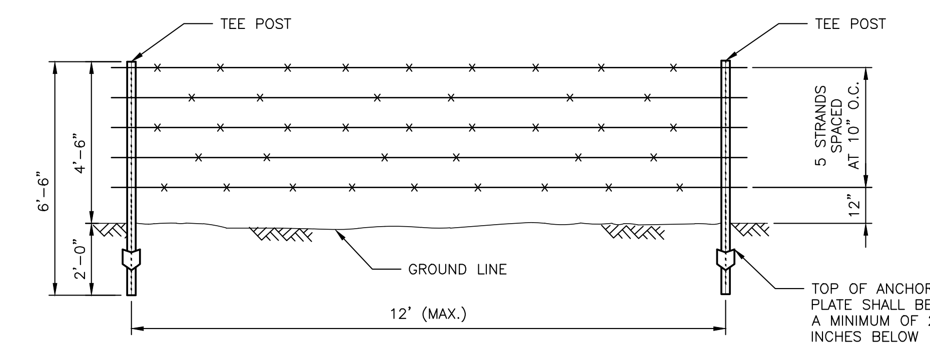
CONCRETE EMBEDMENT OPTION

DETAIL

NOT TO SCALE

CONCRETE EMBEDMENT NOTES:

1. SET STEEL CORNER, BRACE, AND GATE POSTS IN CONCRETE AS SHOWN.
2. IF SOUND ROCK IS ENCOUNTERED THE DRILL HOLE MAY BE A MINIMUM OF 6" IN DIAMETER.
3. UNLESS OTHERWISE STATED OR APPROVED THE CONCRETE FOR THE FOOTING SHALL HAVE A MINIMUM STRENGTH OF 3,000 PSI AT 28 DAYS.
4. CONCRETE SHALL BE MIXED PRIOR TO PLACEMENT.
5. AT CHANGES IN VERTICAL ALIGNMENT, SUCH AS CROSSING OF STUB DIVERSIONS, LINE POSTS OR PULL PANEL POSTS THAT RESTRAIN UPWARD PULL OF THE FENCE STRANDS SHALL BE ANCHORED BY SETTING SUCH POST IN 18" OF CONCRETE. THE ENGINEER WILL DESIGNATE THE LOCATIONS WHERE THIS ANCHORAGE TREATMENT IS REQUIRED.



BARBED WIRE REQUIRED SHALL BE STEEL DOUBLE STRAND 12 ½ GA., COATING TYPE Z (ZINC GALVANIZED) AND COATING CLASS 3 WIRE CONFORMING TO ASTM A121.

BARBS SHALL BE (2) POINT, 14 GA. OR LARGER, ROUND OR FLAT AND ON 4" SPACING.

ATTACH EACH BARBED WIRE STRAND TO THE CORNER, END POST, AND PULL PANEL BRACE POST WITH A DOUBLE WRAP OF GALVANIZED WIRE TIED BACK WITH A MIN. OF 4 WRAPS.

ANCHORAGE OF FENCE WIRE TO POSTS WHERE THERE IS A CHANGE IN VERTICAL ALIGNMENT THAT PRODUCES UPWARD OR DOWNWARD PULL SHALL BE ACCOMPLISHED WITH DOUBLE TIE WIRES TO EACH SUCCESSIVE FENCE WIRE. THE ENGINEER WILL DESIGNATE THE POSTS WHERE THIS SPECIAL FASTENING OF THE FENCE WIRES ARE REQUIRED.

5-STRAND BARBED WIRE

NOT TO SCALE

THE APPROX. LOCATION OF FENCES TO BE CONSTRUCTED ARE SHOWN ON SHEETS 5.

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: KNF

DRAWN BY: CAD

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FILE NAME: Plum 21 - Sht 69.dwg

DATE CHECKED: 8/4/2021

FENCE DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN

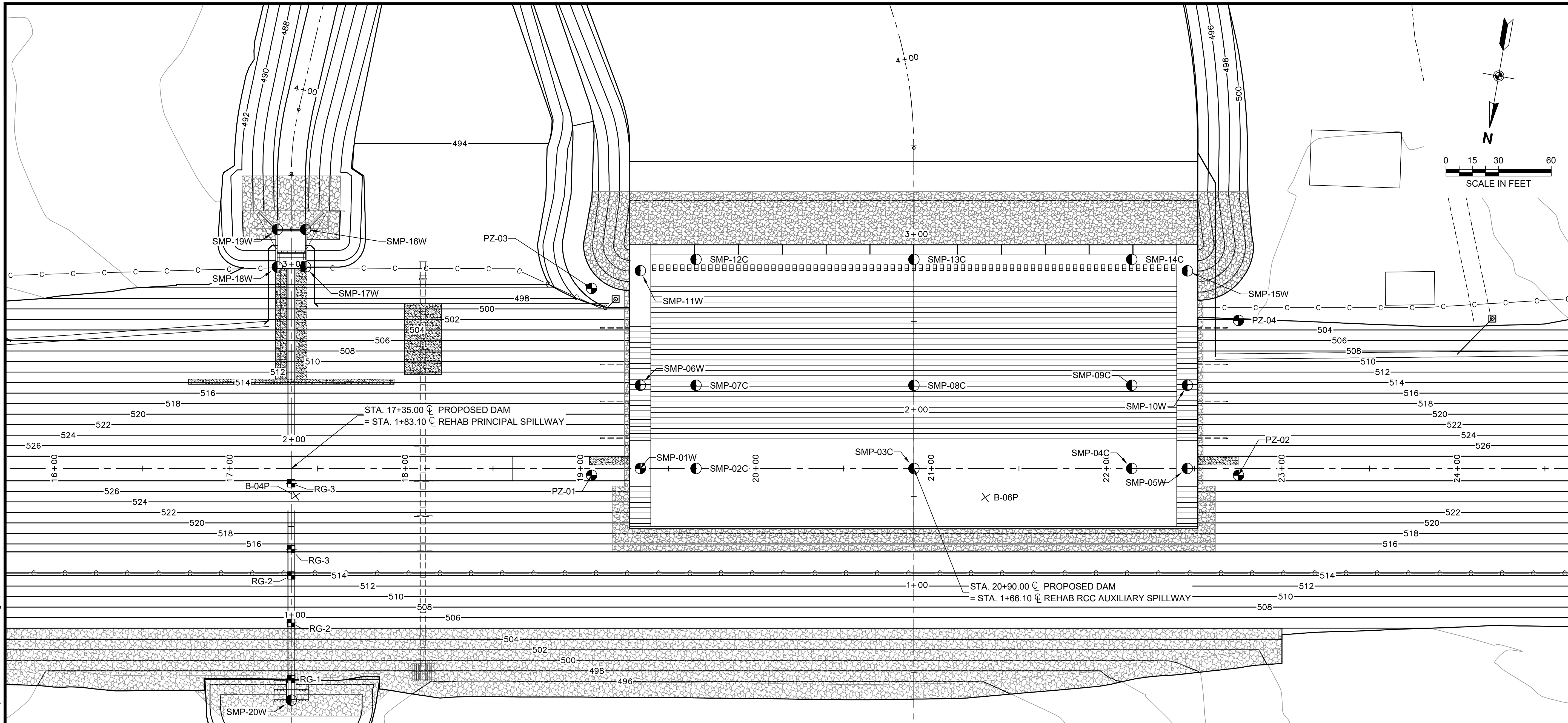
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture

Natural Resources Conservation Service

DRAWING NO. TX-EN-0754

SHEET NO. 69 OF 83



HORIZONTAL CONTROL			
ID #	NORTHING	EASTING	INSTRUMENT TYPE
B–04P	13898060.5	2394711.3	EXISTING PIEZOMETER (DECOMMISSION)
B–06P	13897993.3	2394323.8	EXISTING PIEZOMETER (DECOMMISSION)
PZ–01	13898019.8	2394547.2	PROPOSED PIEZOMETER
PZ–02	13897955.9	2394183.8	PROPOSED PIEZOMETER
PZ–03	13897914.8	2394565.6	PROPOSED PIEZOMETER
PZ–04	13897868.9	2394199.1	PROPOSED PIEZOMETER
RG–1	13898163.8	2394695.7	RESERVOIR GAUGE (METAL)
RG–2	13898132.2	2394701.3	RESERVOIR GAUGE (CONCRETE, LOWER)
RG–2	13898105.6	2394705.9	RESERVOIR GAUGE (CONCRETE, UPPER)
RG–3	13898053.9	2394715.0	RESERVOIR GAUGE (CONCRETE, UPPPER)
RG–3	13898090.8	2394708.5	RESERVOIR GAUGE (CONCRETE, LOWER)
SMP–01W	13898011.1	2394520.5	SURVEY MONITORING POINT
SMP–02C	13898005.6	2394489.2	SURVEY MONITORING POINT
SMP–03C	13897984.1	2394366.8	SURVEY MONITORING POINT
SMP–04C	13897962.6	2394244.5	SURVEY MONITORING POINT
SMP–05W	13897957.1	2394213.2	SURVEY MONITORING POINT

HORIZONTAL CONTROL			
ID #	NORTHING	EASTING	INSTRUMENT TYPE
SMP–06W	13897964.4	2394528.7	SURVEY MONITORING POINT
SMP–07C	13897958.9	2394497.4	SURVEY MONITORING POINT
SMP–08C	13897937.4	2394375.1	SURVEY MONITORING POINT
SMP–09C	13897915.9	2394252.7	SURVEY MONITORING POINT
SMP–10W	13897910.4	2394221.4	SURVEY MONITORING POINT
SMP–11W	13897900.1	2394540.0	SURVEY MONITORING POINT
SMP–12C	13897888.2	2394509.8	SURVEY MONITORING POINT
SMP–13C	13897866.7	2394387.5	SURVEY MONITORING POINT
SMP–14C	13897845.2	2394265.1	SURVEY MONITORING POINT
SMP–15W	13897846.2	2394232.7	SURVEY MONITORING POINT
SMP–16W	13897910.0	2394732.2	SURVEY MONITORING POINT
SMP–17W	13897931.0	2394728.5	SURVEY MONITORING POINT
SMP–18W	13897933.8	2394744.3	SURVEY MONITORING POINT
SMP–19W	13897912.7	2394747.9	SURVEY MONITORING POINT
SMP–20W	13898175.6	2394693.6	SURVEY MONITORING POINT

LEGEND:

- STRUCTURE SURVEY MONITORING POINT (20 REQ'D)
- PIEZOMETER (4 REQ'D)
- RESERVOIR STAFF GAGE (3 REQ'D)

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 70.dwg
DATE CHECKED: 8/4/2021

PLAN OF INSTRUMENTATION

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 70
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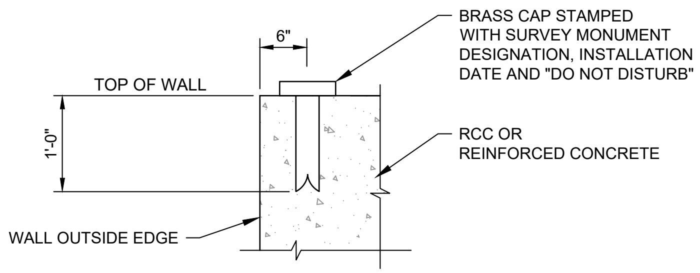
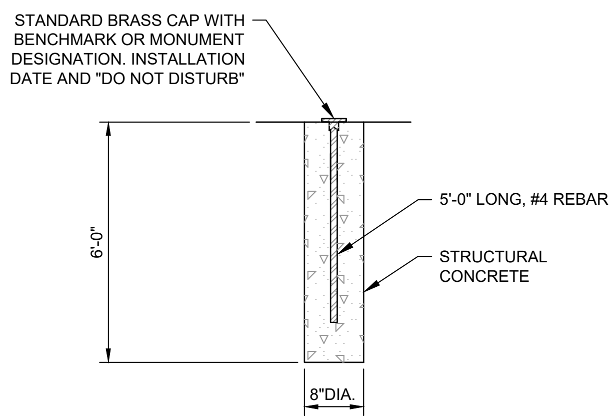


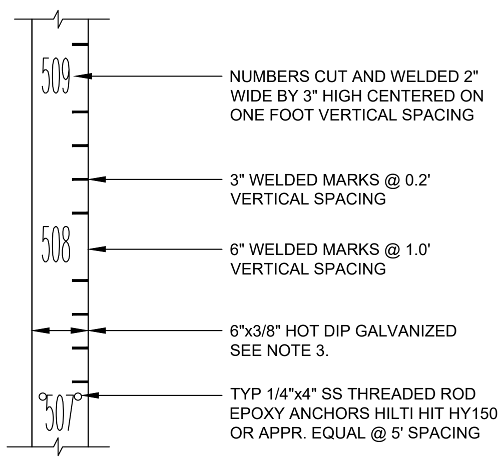
1 TYPICAL NEW STRUCTURAL SURVEY MONITORING POINT

SCALE: NTS



2 TYPICAL NEW BENCHMARK OR GROUND SURVEY MONITORING POINT

SCALE: NTS

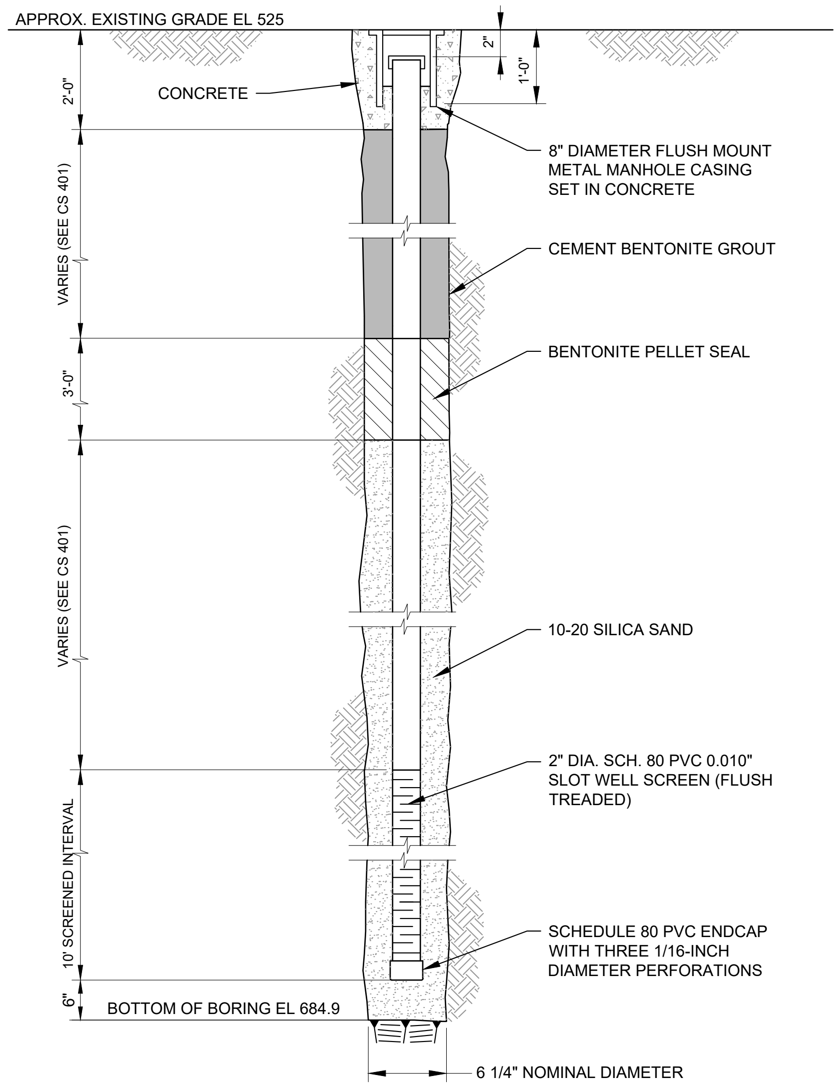


METAL STAFF GAUGE NOTES:

1. ELEVATION SHOWN ON STAFF GAUGES SHALL BE ACTUAL ELEVATION PER NAVD88.
2. SURVEY GAUGE ELEVATIONS BEFORE FABRICATION AND FOR FIELD INSTALLATION.
3. NUMBERS AND MARKS TO BE WELDED BEFORE GALVANIZING.
4. STAFF GAUGE SHALL BE MOUNTED VERTICALLY ON THE DOWNSTREAM FACE OF THE PRINCIPAL SPILLWAY INLET RISER BETWEEN ELEVATIONS 497.0 AND 505.4.

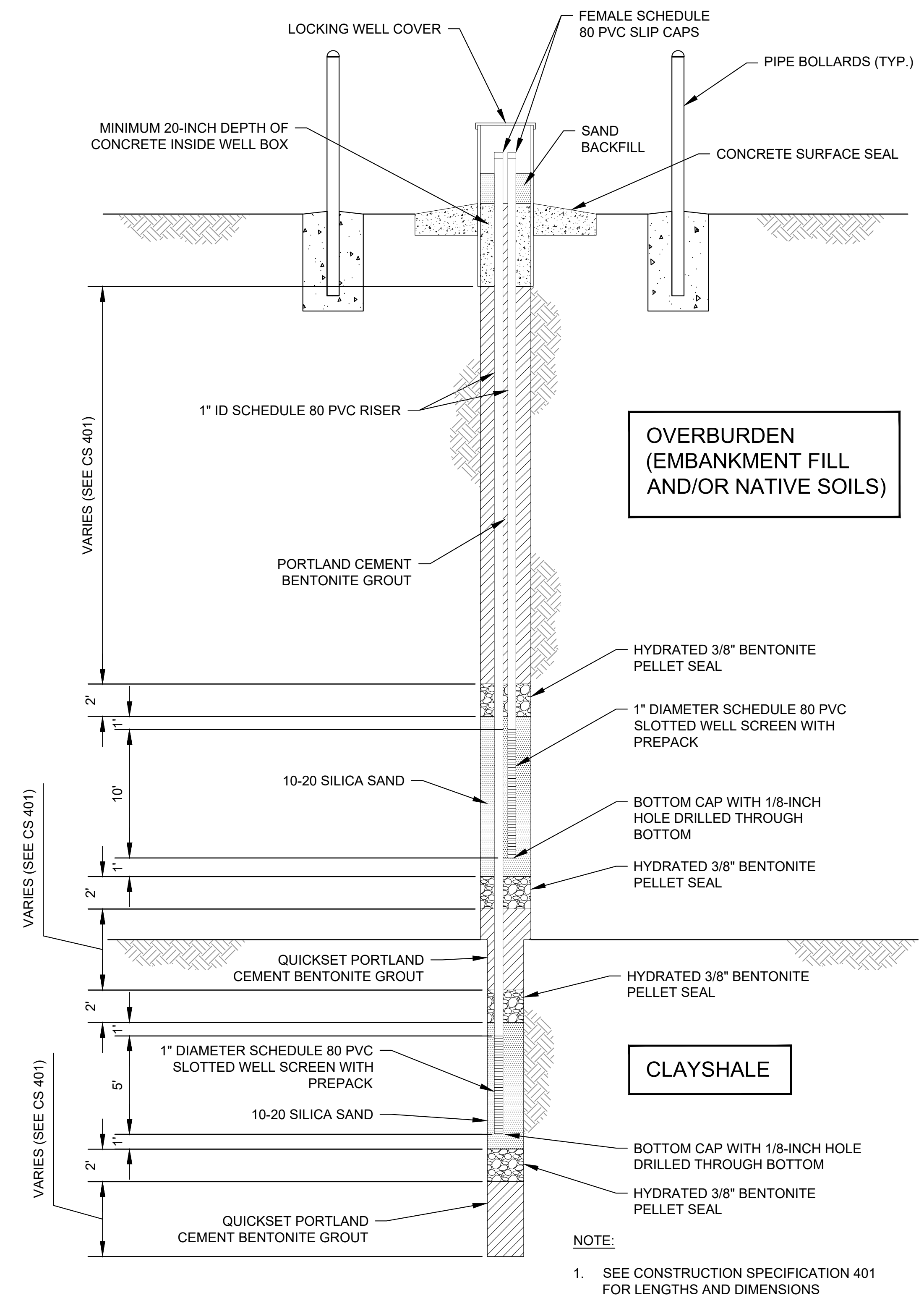
3 RESERVOIR METAL STAFF GAUGE DETAIL

SCALE: NTS



4 TYPICAL DETAIL OF EXISTING PIEZOMETERS TO BE DECOMMISSIONED

SCALE: NTS



NOTE:

1. SEE CONSTRUCTION SPECIFICATION 401 FOR LENGTHS AND DIMENSIONS

5 TYPICAL PIEZOMETER DETAIL

SCALE: NTS

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 71.dwg
DATE CHECKED: 8/4/2021

INSTRUMENTATION DETAILS (1 OF 2)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

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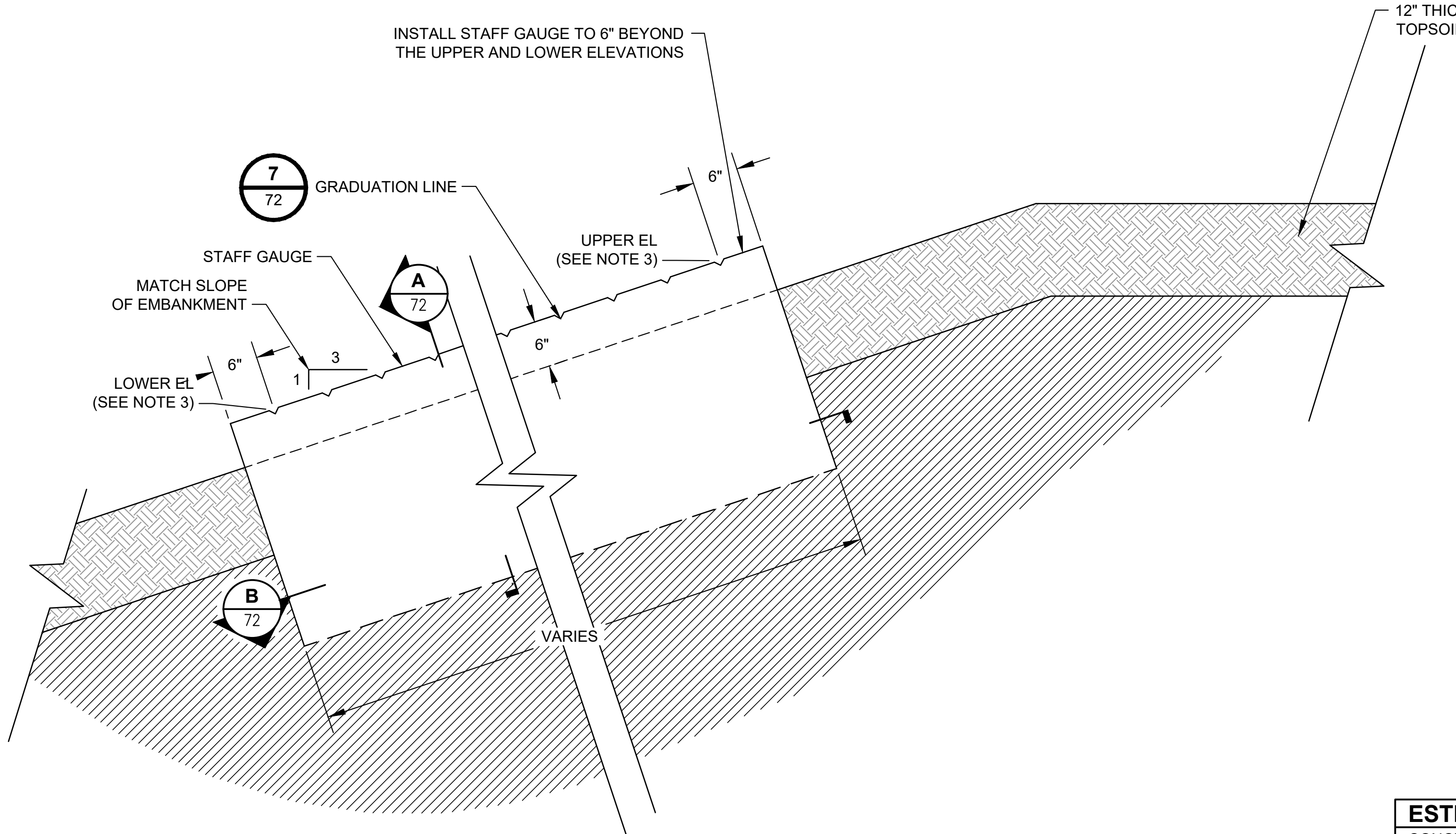
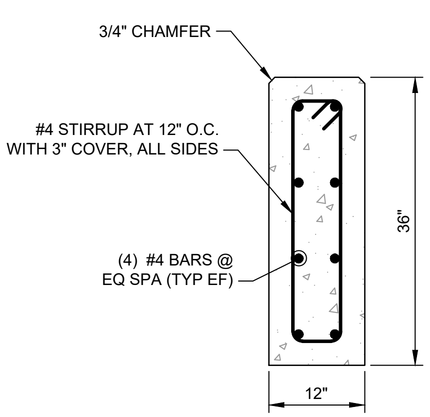


6 / 72 **CONCRETE STAFF GAUGE DETAIL**

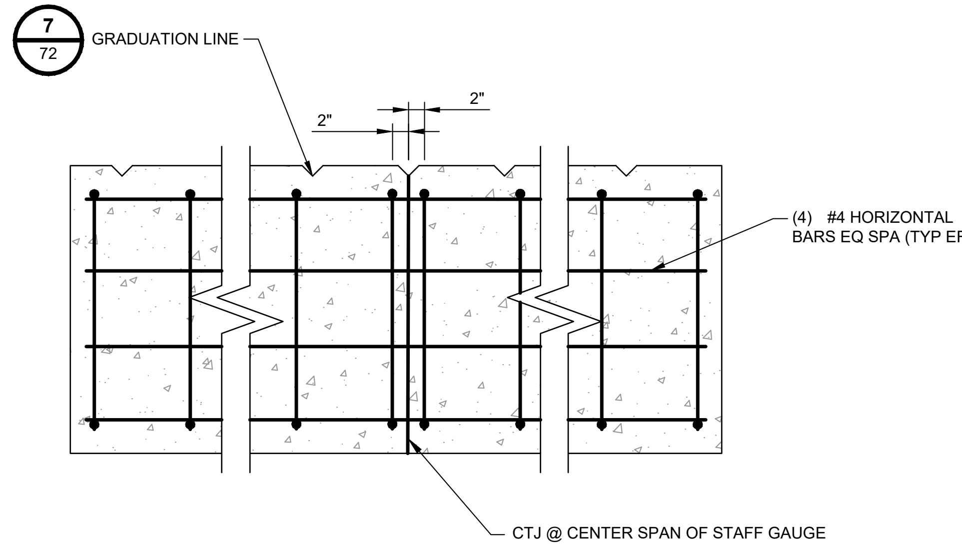
NTS

ESTIMATED BILL OF MATERIAL - STAFF GAUGE		
CONCRETE	4.5	CY
REINFORCING STEEL	300	LB



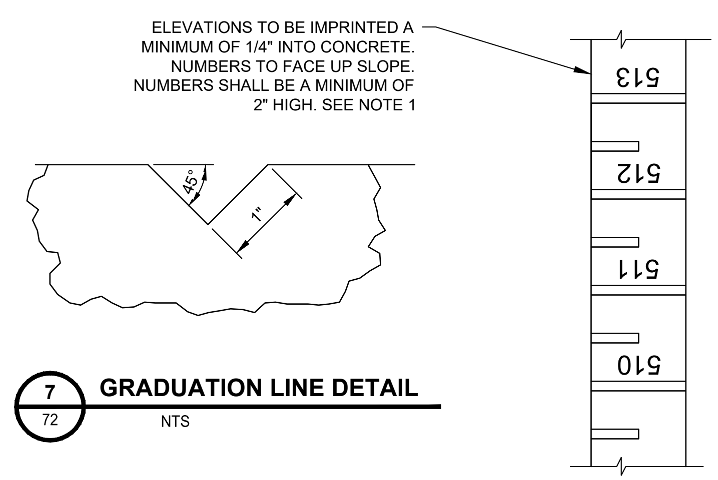
A / 72 **CONCRETE STAFF GAUGE SECTION**

NTS



B / 72 **CONCRETE STAFF GAUGE SECTION**

NTS



7 / 72 **GRADUATION LINE DETAIL**

NTS

NOTES:

1. ELEVATION MARKERS INDENTED INTO CONCRETE AT ONE FOOT AND HALF FOOT VERTICAL INTERVALS. LOCATIONS TO BE SET BY A QUALIFIED SURVEYOR AT 10' VERTICAL INTERVALS PRIOR TO POURING CONCRETE, BUT AFTER FORMS ARE PLACED. INTERMEDIATE VALUES MAY BE SET BY CONTRACTOR WITH PRECISION LEVELING EQUIPMENT.
2. RG-02 LOWER AND UPPER ELEVATIONS ARE 505.5 AND 514.0. RG-03 LOWER AND UPPER ELEVATIONS ARE 515.0 AND 527.5. REFER TO PLAN OF INSTRUMENTATION ON SHEET 70.
3. ELEVATIONS SHOWN SHALL BE ACTUAL ELEVATIONS PER NAVD88

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INSTRUMENTATION DETAILS (2 OF 2)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754
SHEET NO. 72
OF 83

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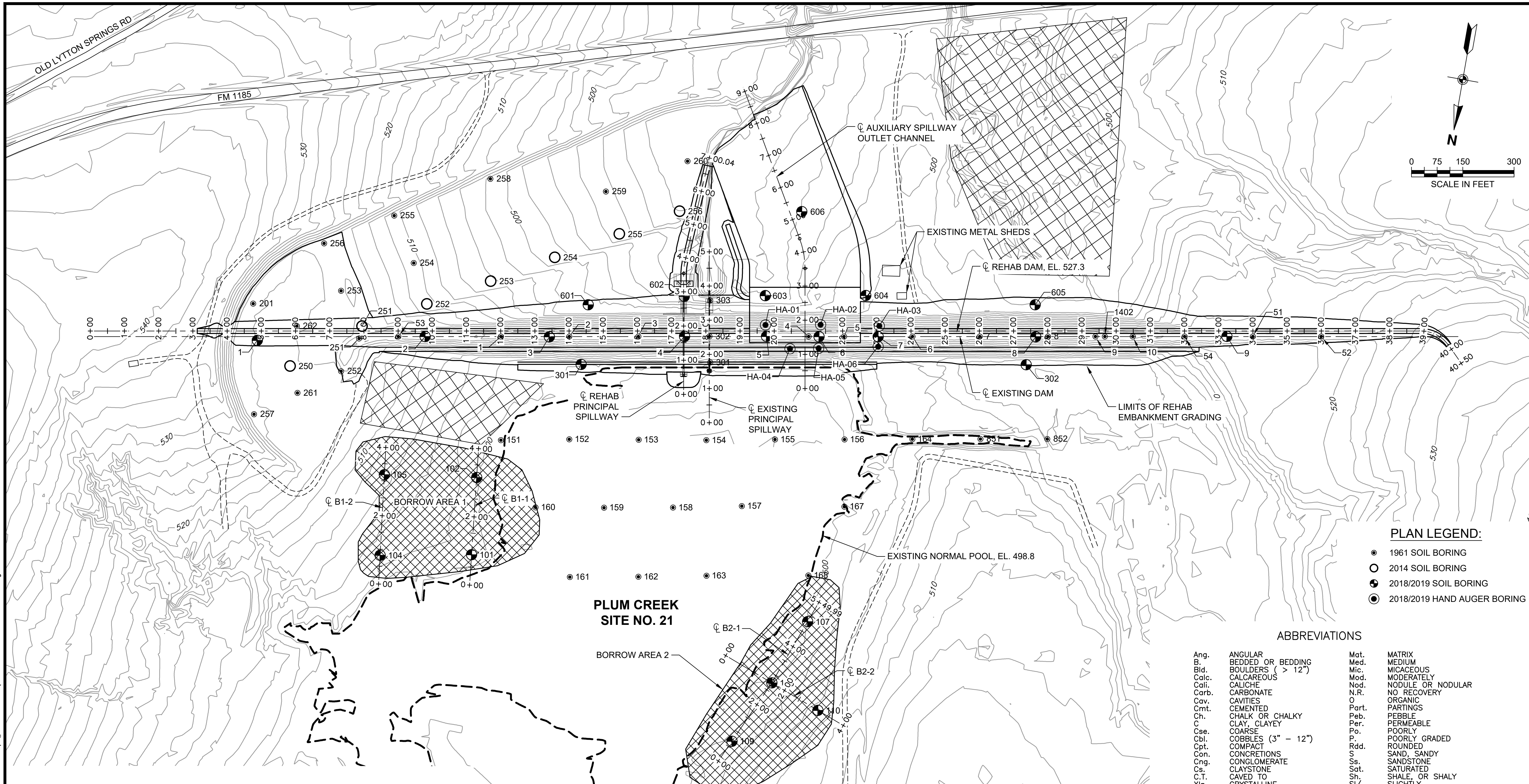

LEGEND:

TOPSOIL	LOW PLASTICITY GRAVELLY CLAY	CLAYSTONE
LOW PLASTICITY CLAY	LIMESTONE	SHALE
HIGH PLASTICITY CLAY	CLAYSHALE	SILTY GRAVEL
LOW PLASTICITY SANDY CLAY	CLAYEY GRAVEL	INTERBEDDED SHALE OR LIMESTONE 1
CLAYEY SAND		

N = SPT BLOWS PER 6" INCREMENT (N-VALUE, BPF)
P = POCKET PENETROMETER (TSF)
RC = CORE RECOVERY (%) – RQD (%)
LL = LIQUID LIMIT
PI = PLASTICITY INDEX
N200 = FINES CONTENT
U = UNCONFINED COMPRESSIVE STRENGTH

WATER LEVEL AT TIME DRILLING, OR AS SHOWN
WATER LEVEL AT END OF DRILLING, OR AS SHOWN
WATER LEVEL AFTER 24 HOURS, OR AS SHOWN

TEST HOLE NUMBERING SYSTEM

	COMBINATION RIG	POWER AUGER	HAND BORINGS	TRENCH OR PIT EXCAVATIONS	NATURAL OUTCROPS, STREAMBANKS, AND GULLIES
CENTERLINE OF DAM	1–49	51–99	1001–1099	2001–2099	3001–3099
BORROW AREA	101–149	151–199	1101–1199	2101–2199	3101–3199
EMERGENCY SPILLWAY	201–249	251–299	1201–1299	2201–2299	3201–3299
PRINCIPAL SPILLWAY	301–349	351–399	1301–1399	2301–2399	3301–3399
STREAM CHANNELS	401–449	451–499	1401–1499	2401–2499	3401–3499
EXPLORATORY BORINGS	501–549	551–599	1501–1599	——	——
FOUNDATION DRAIN	601–649	651–699	1601–1699	2601–2699	3601–3699
MISCELLANEOUS	701–749	751–799	1701–1799	2701–2799	3701–3799

CLASSIFICATION	RANGE OF GRAIN SIZE U.S. standard sieve size
BOULDERS	ABOVE 12"
COBBLES	12" TO 3"
GRAVEL Course Fine	3" to No. 4 3" to 3/4" 3/4" to No. 4
SAND Coarse Medium Fine	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200
SILT & CLAY	Below No. 200

ABBREVIATIONS

Ang.	ANGULAR	Mat.	MATRIX
B.	BEDDED OR BEDDING	Med.	MEDIUM
Bld.	BOULDERS (> 12")	Mic.	MICACEOUS
Calc.	CALCAREOUS	Mod.	MODERATELY
Cali.	CALICHE	Nod.	NODULE OR NODULAR
Carb.	CARBONATE	N.R.	NO RECOVERY
Cav.	CAVITIES	O	ORGANIC
Cmt.	CEMENTED	Part.	PARTINGS
Ch.	CHALK OR CHALKY	Peb.	PEBBLE
C	CLAY, CLAYEY	Per.	PERMEABLE
Cse.	COARSE	Po.	POORLY
Cbl.	COBBLES (3" – 12")	P.	POORLY GRADED
Cpt.	COMPACT	Rdd.	ROUNDED
Con.	CONCRETIONS	S	SAND, SANDY
Cng.	CONGLOMERATE	Ss.	SANDSTONE
Cs.	CLAYSTONE	Sat.	SATURATED
C.T.	CAVED TO	Sh.	SHALE, OR SHALY
Xln.	CRYSTALLINE	Sl/.	SLIGHTLY
Ds.	DENSE	Slo.	SLOWLY
Dip.	DIPPING	M	SILT, SILTY
D.S.	DOWNSTREAM	Sft.	SOFT
Fe. Stn.	Iron Stains	Sl.	SOME
Flg.	FLAGSTONE OR FLAGGY	Stf.	STIFF
Fn.	FINE	Str.	STREAKS
Frm.	FIRM	T.	THIN
Frac.	FRACTURED	T.B.	THIN – BEDDED
Frg.	FRAGMENTS	Tuff.	TUFFACEOUS
Fri.	FRIABLE	U.A.D.	UNABLE TO AUGER DEEPER
Grn.	GRAIN	U.D.B.D.	UNABLE TO DRY BARREL DEEPER
G	GRAVEL, GRAVELLY	U.E.D.	UNABLE TO EXCAVATE DEEPER
Gyp.	GYPSEOUS	U.S.	UPSTREAM
Hd.	ROCK HARDNESS	Var.	VARIABLE
H.	HIGHLY	V/.	VERY
Int.	INTERBEDDED	Vug.	VUGULAR
Lam.	LAMINATED	Wtr.	WATER LEVEL AS ENCOUNTERED DURING DRILLING PROCESS
Lay.	LAYER OR LAYERS	W	WELL GRADED
Len.	LENS OR LENSES	W/.	WITH
Lig.	LIGNITE	Wea.	WEATHERED
Ls.	LIMESTONE		(DATE) STATIC WATER LEVEL
Lse.	LOOSE		
Ma.	MARL, OR MARLY		
Mas.	MASSIVE		

NOTES:

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2. ADDITIONAL SOIL MECHANICS AND FOUNDATION INVESTIGATION DATA WILL BE AVAILABLE ONLINE AT WWW.PCCD.ORG JOBS BID TAB ALONG WITH SITE 21 REHABILITATION BID DOCUMENTS.

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STATE OF TEXAS
LANCE T. FINNEFROCK
111398
LICENSED PROFESSIONAL ENGINEER
8/4/21

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DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 72–81.dwg
DATE CHECKED: 8/4/2021

PLAN OF GEOLOGIC INVESTIGATIONS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA
United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754

SHEET NO. 73 OF 83

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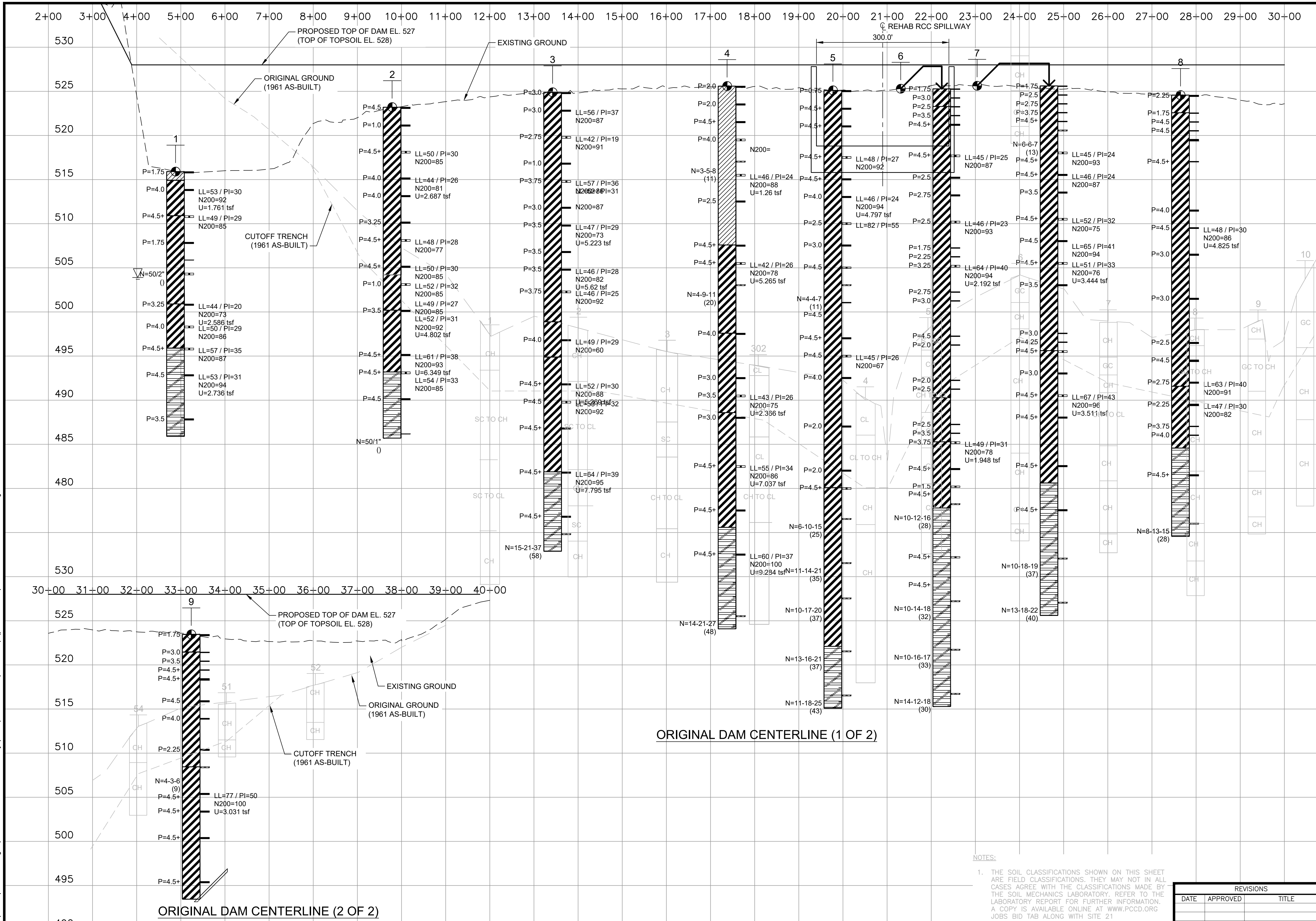

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GEOLOGIC INVESTIGATIONS – PROFILES (1 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
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DRAWING NO.
TX–EN–0754

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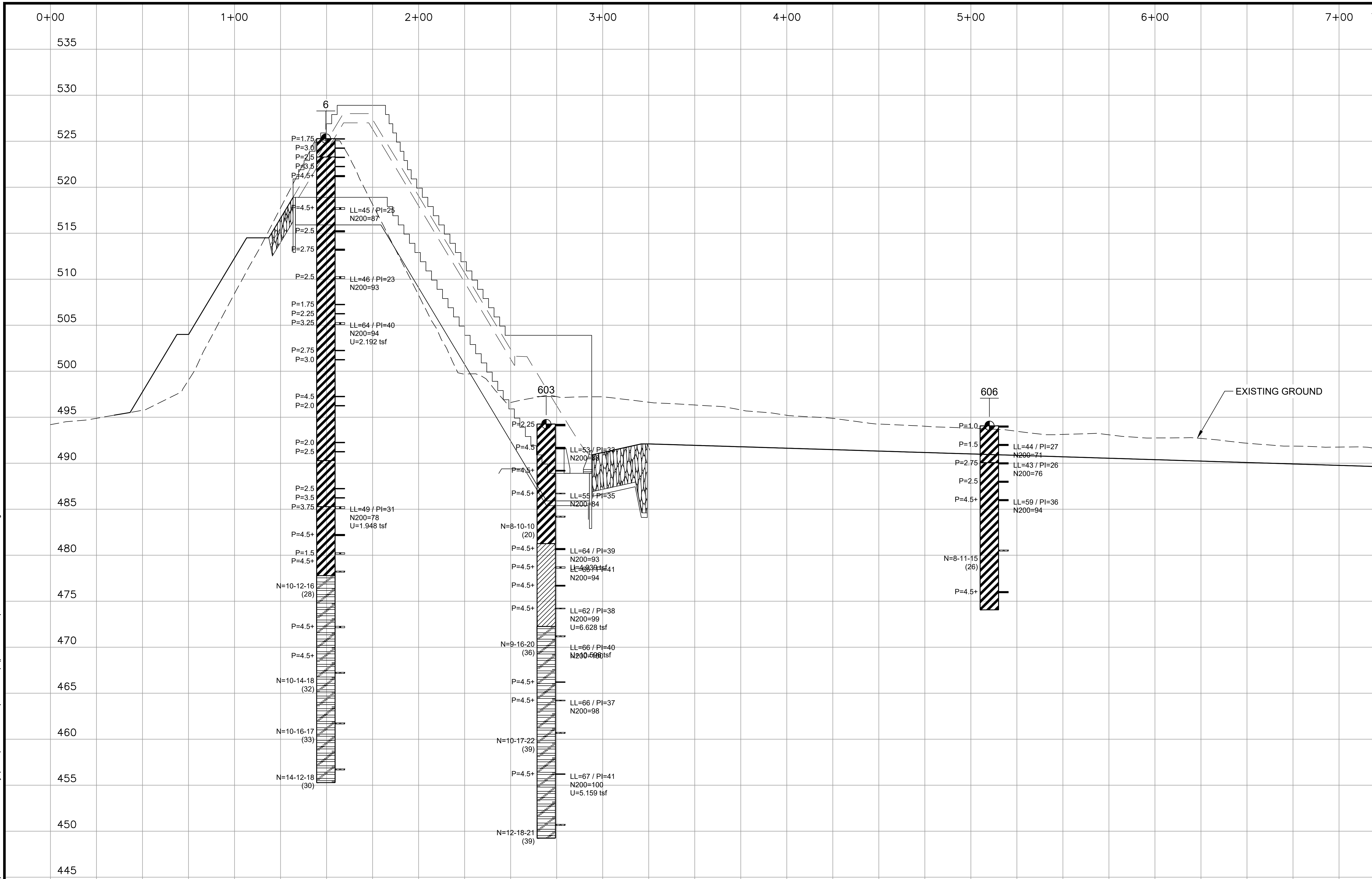

RCC SPILLWAY CENTERLINE

NOTES:

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GEOLOGIC INVESTIGATIONS – PROFILES (2 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
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DRAWING NO. TX–EN–0754
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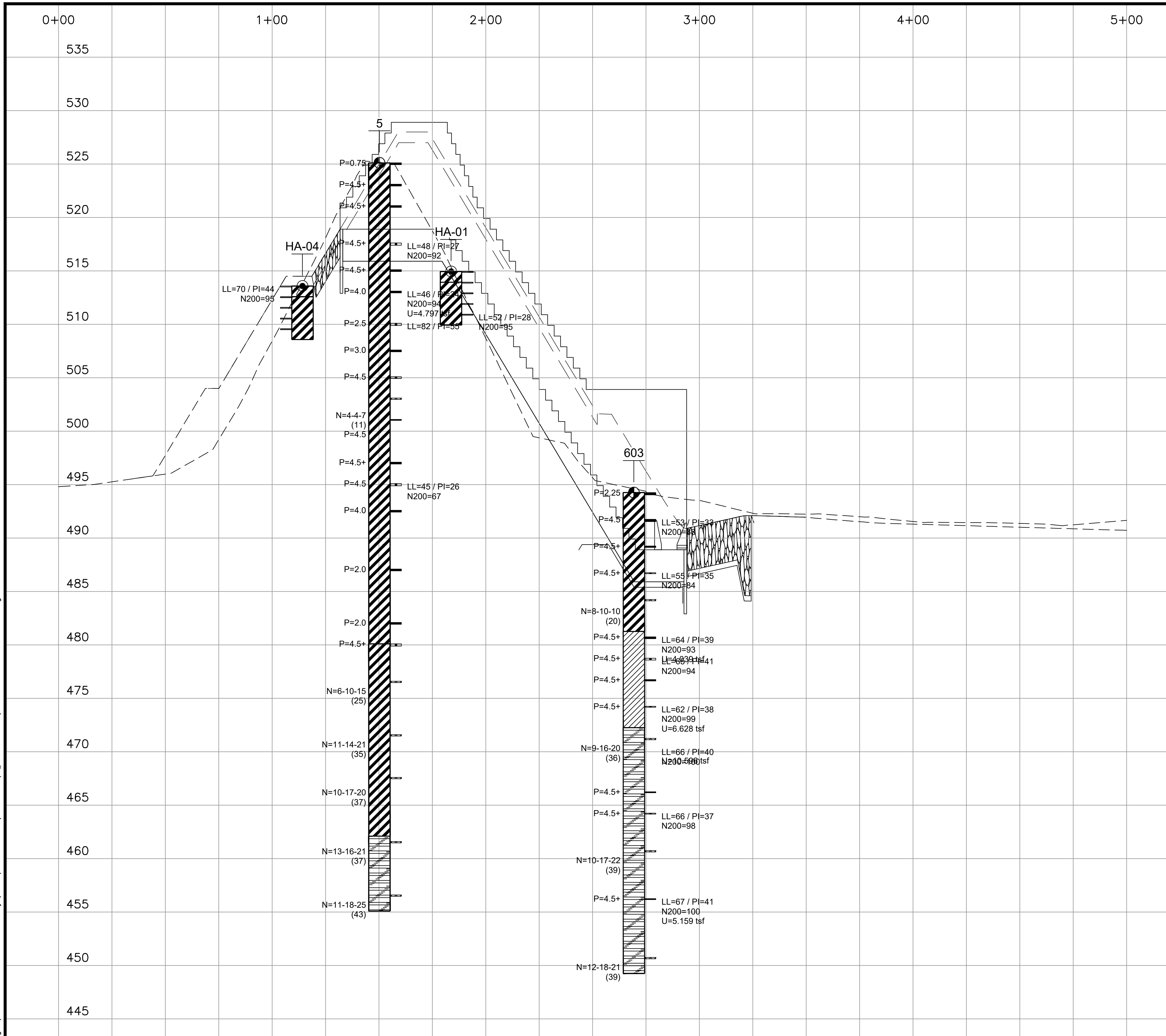

RCC SPILLWAY LEFT WALL

NOTES:

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GEOLOGIC INVESTIGATIONS – PROFILES (3 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

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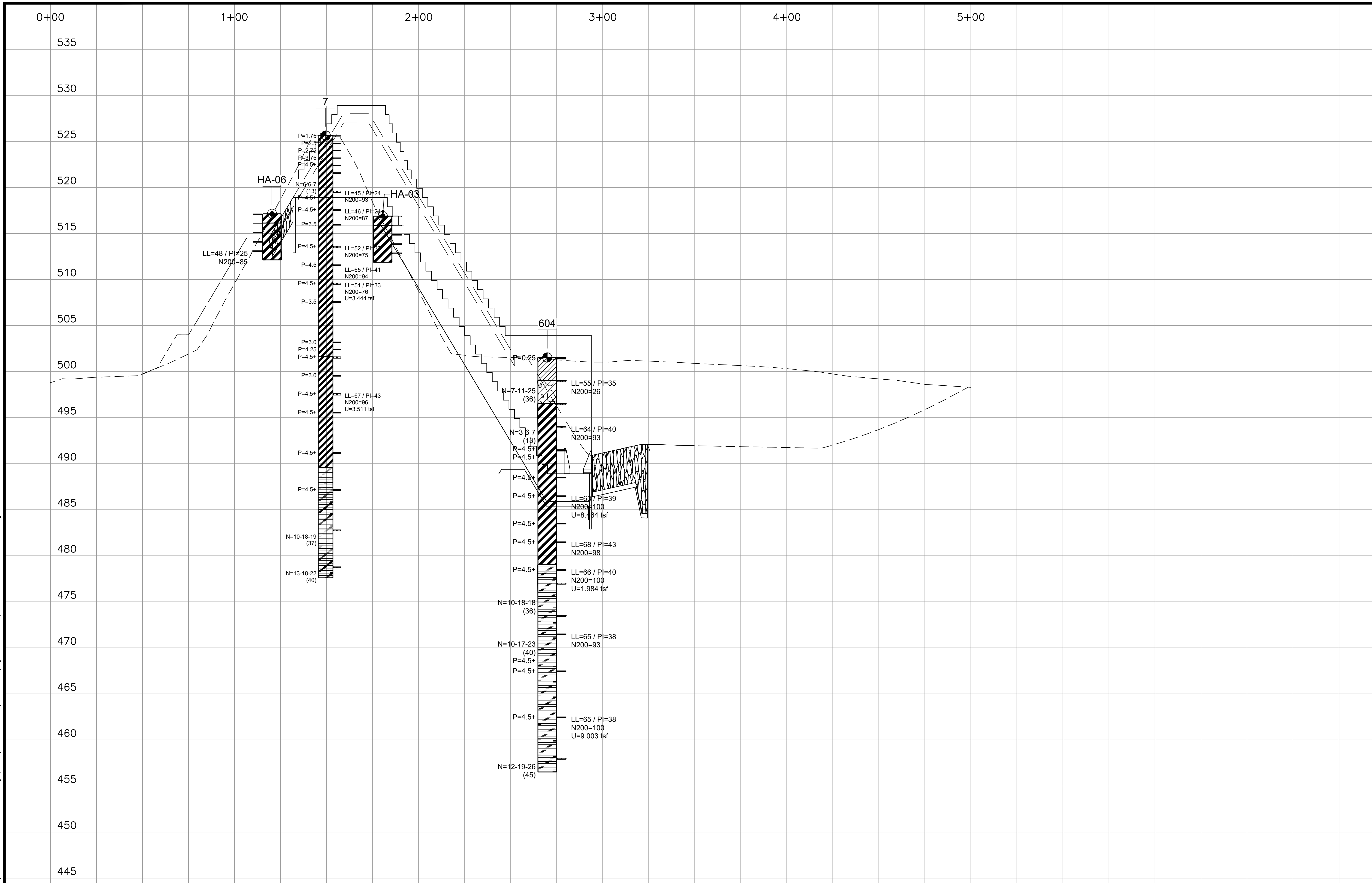

RCC SPILLWAY RIGHT WALL

NOTES:

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GEOLOGIC INVESTIGATIONS – PROFILES (4 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
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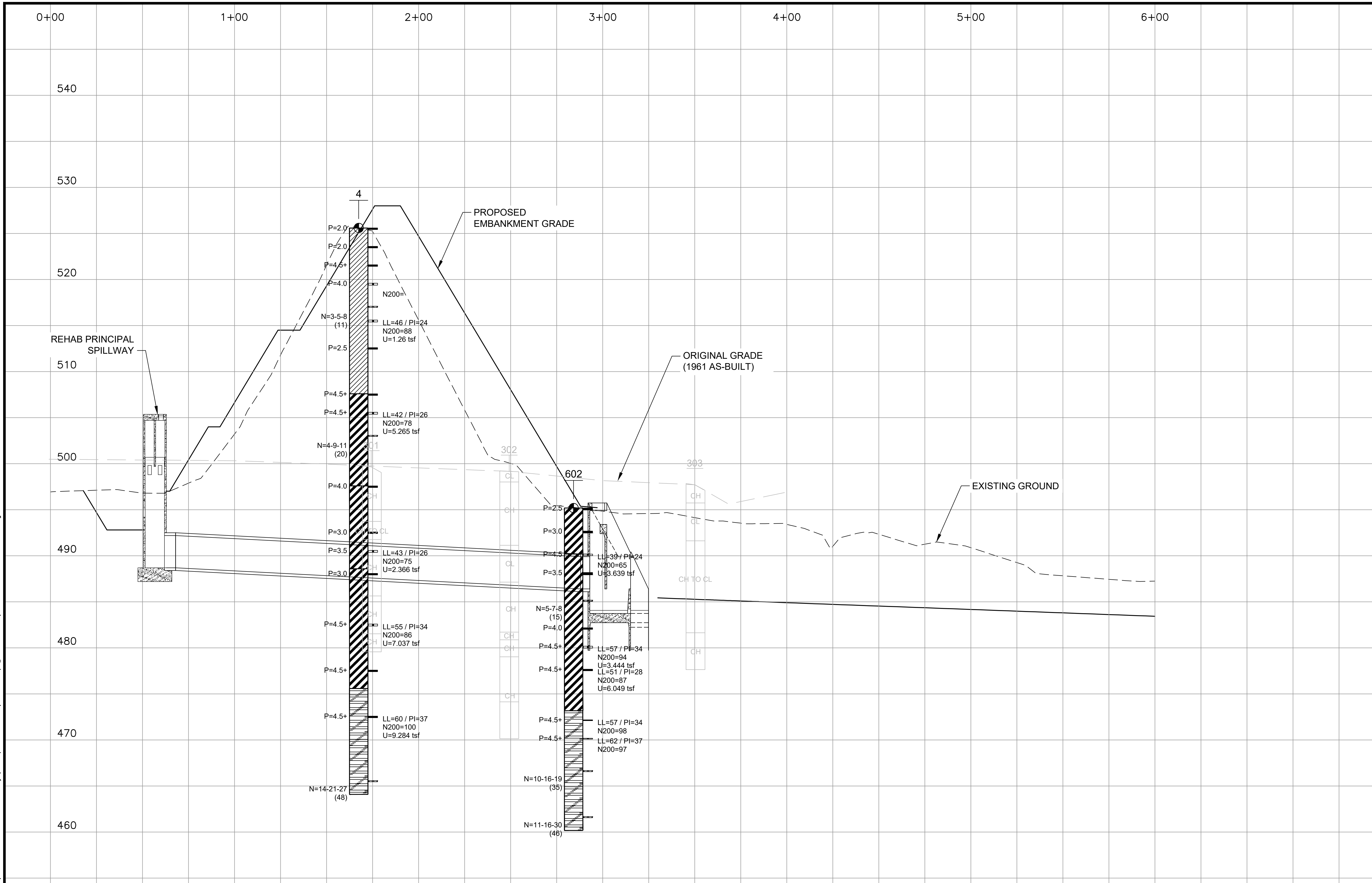

PRINCIPAL SPILLWAY PROFILE

NOTES:

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GEOLOGIC INVESTIGATIONS – PROFILES (5 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

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United States Department of Agriculture
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OF 83

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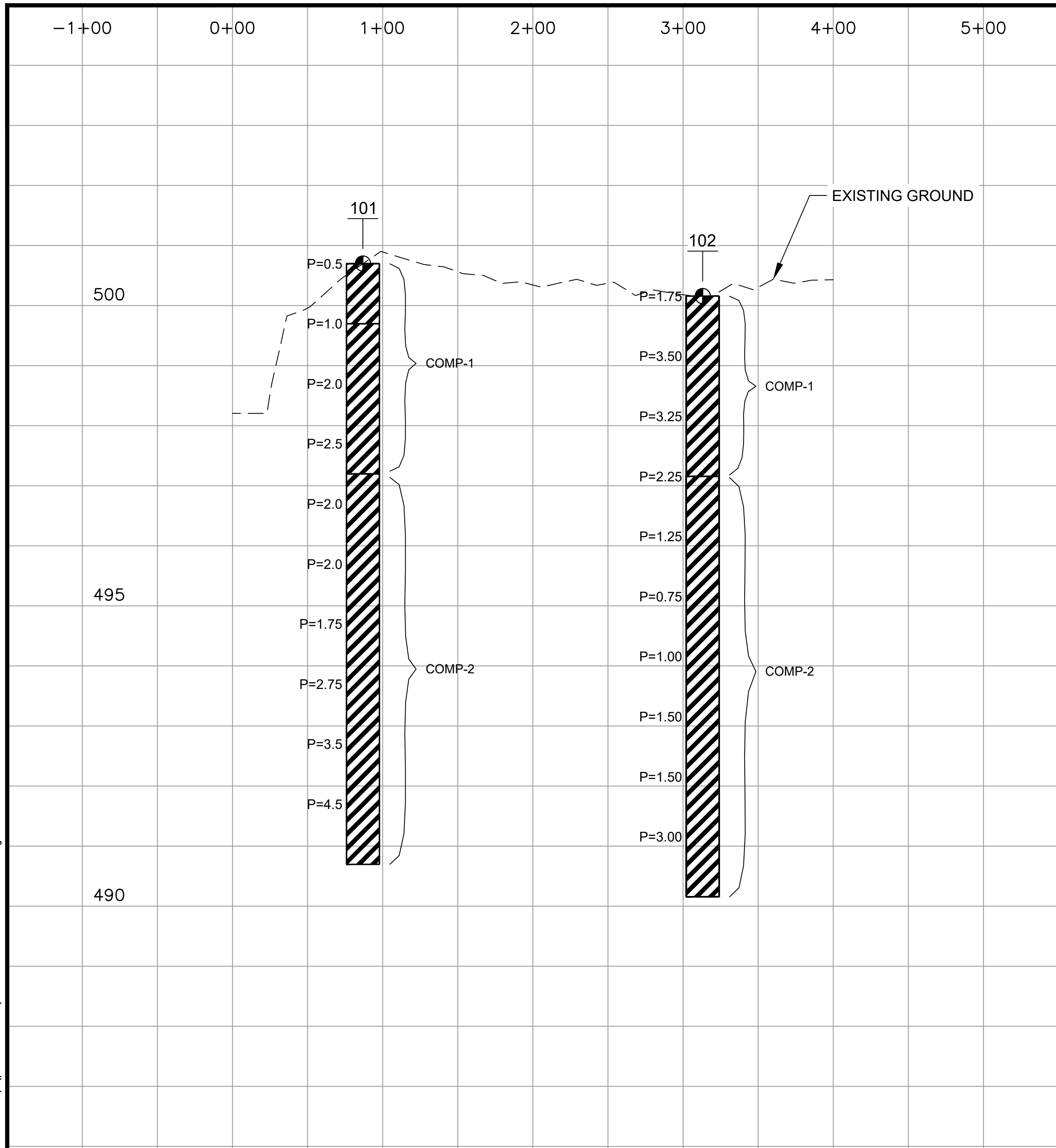
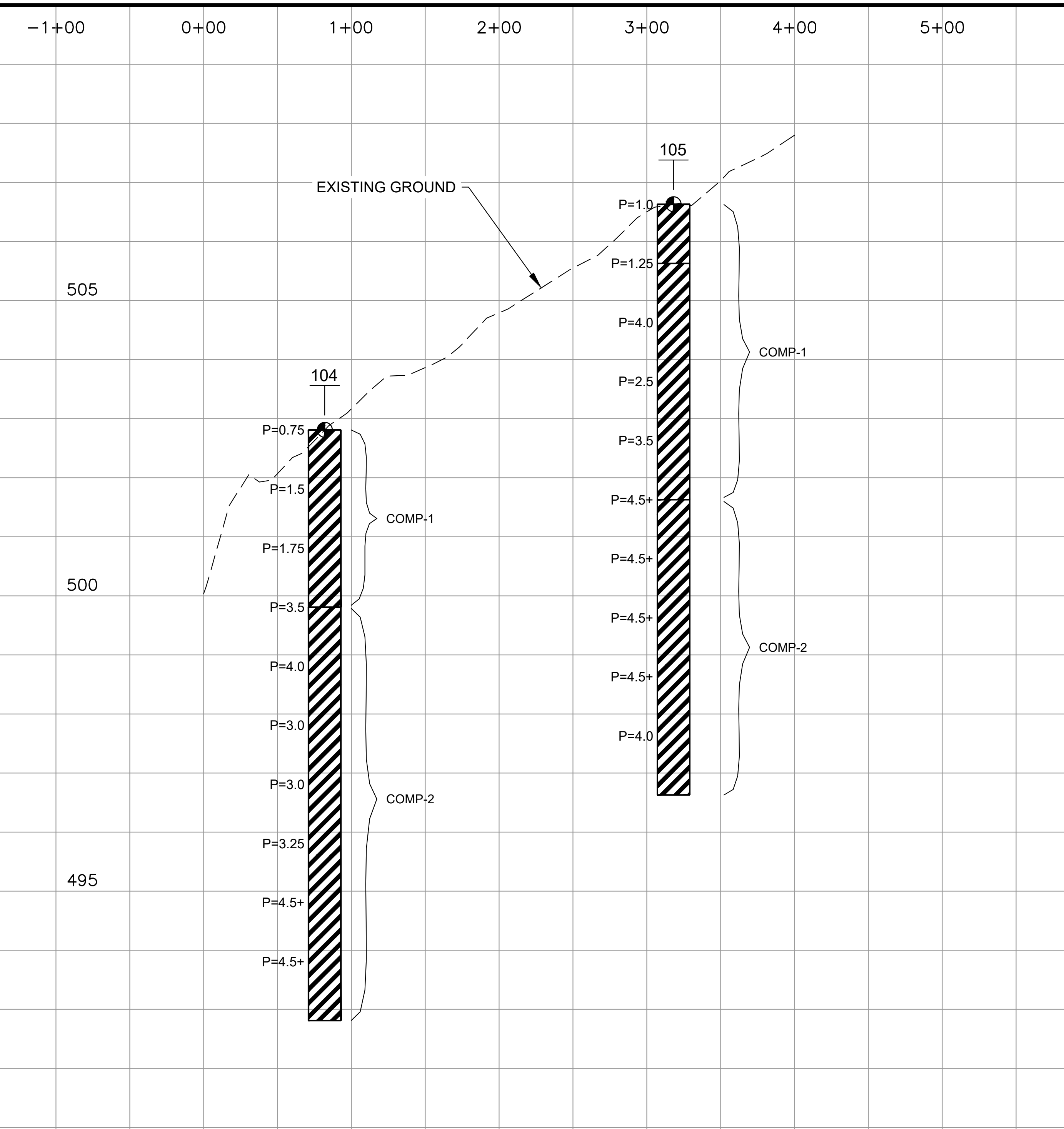


BORROW AREA 1 CL B1-1



BORROW AREA 1 CL B1-2

NOTES:

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STATE OF TEXAS
LANCE T. PINNEROOK
111398
LICENSED PROFESSIONAL ENGINEER
8/4/21

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GEOLOGIC INVESTIGATIONS – PROFILES (6 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
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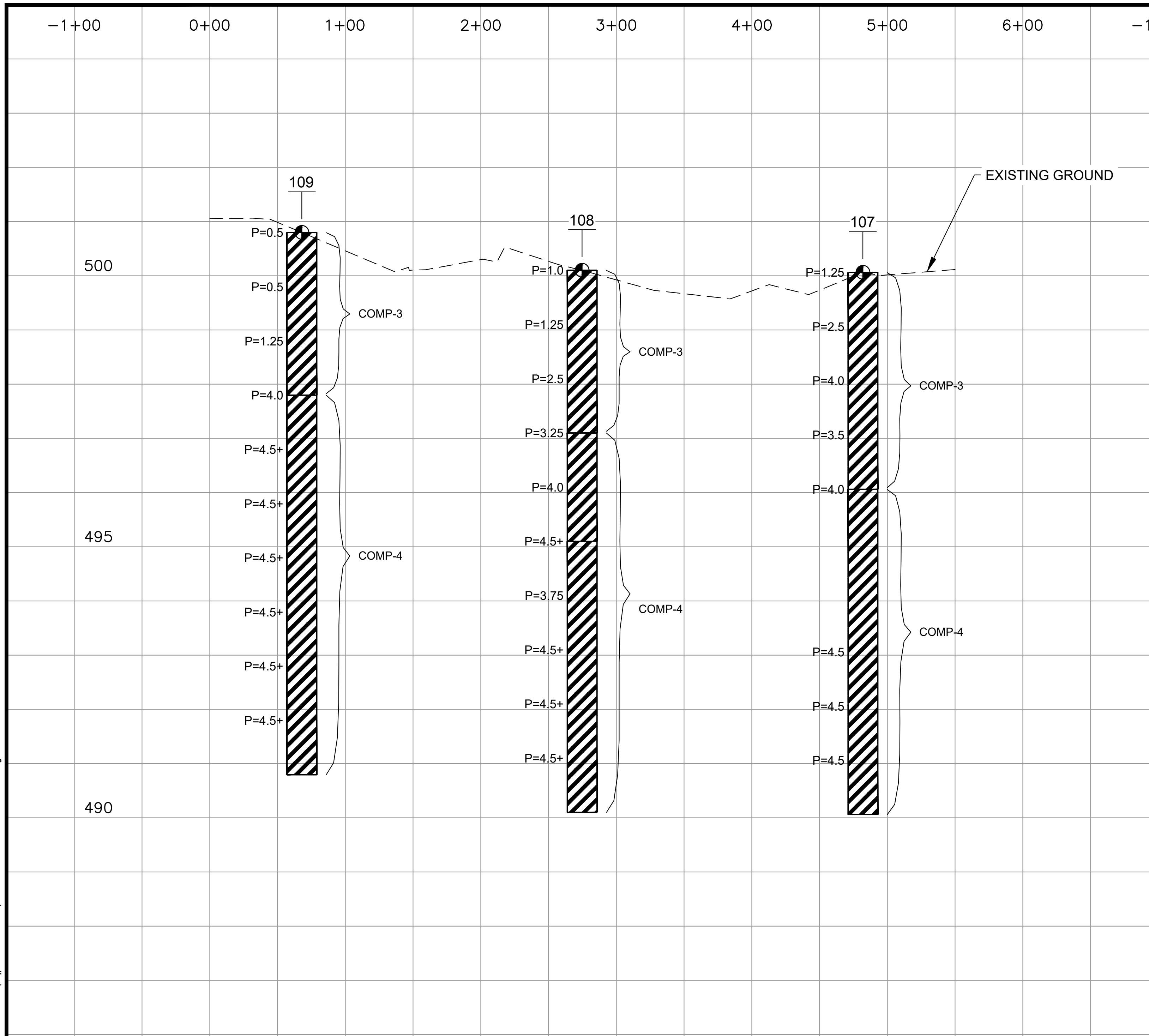
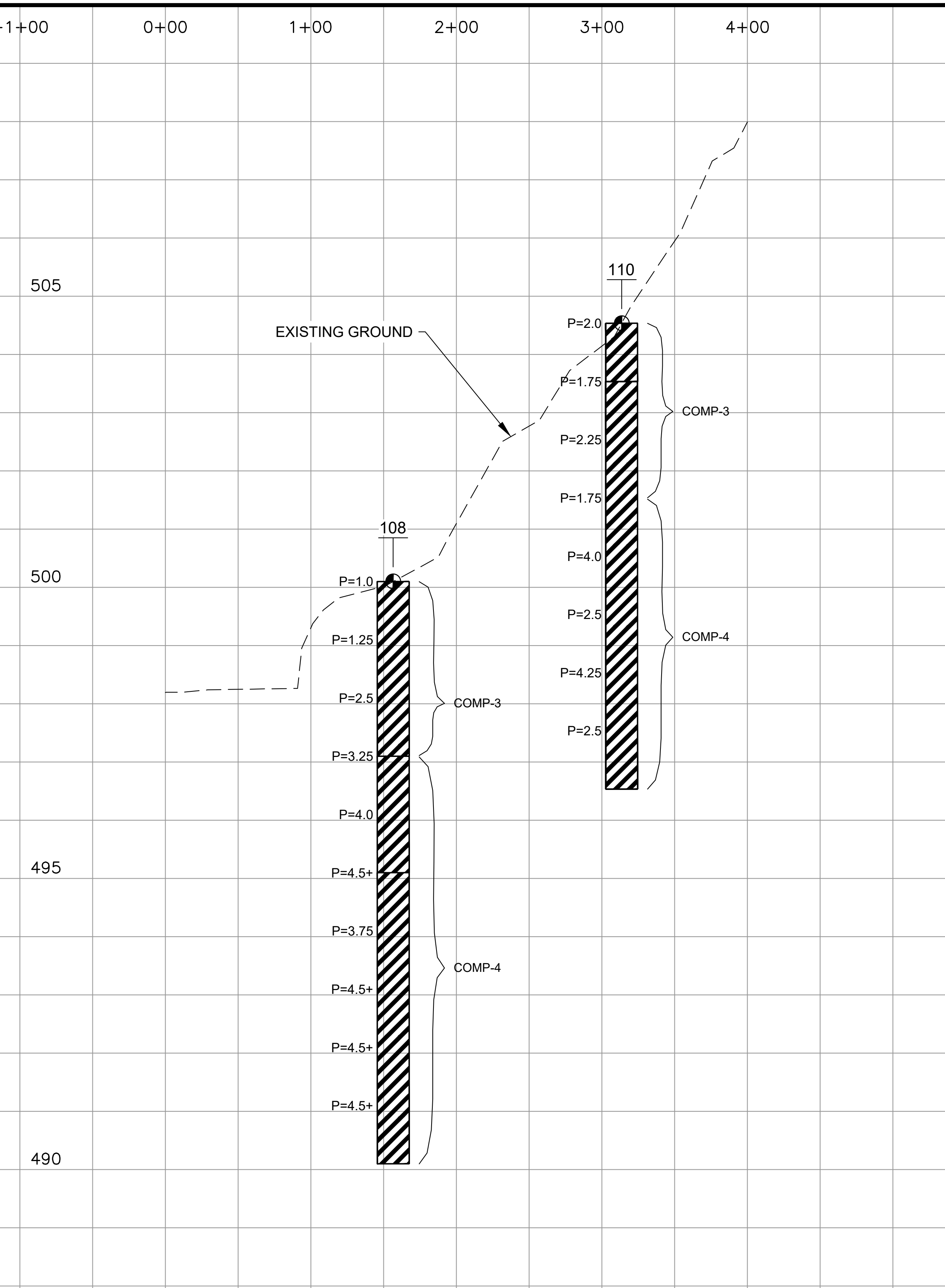


CL BORROW AREA 2 CL B2-1



CL BORROW AREA 2 CL B2-2

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GEOLOGIC INVESTIGATIONS – PROFILES (7 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
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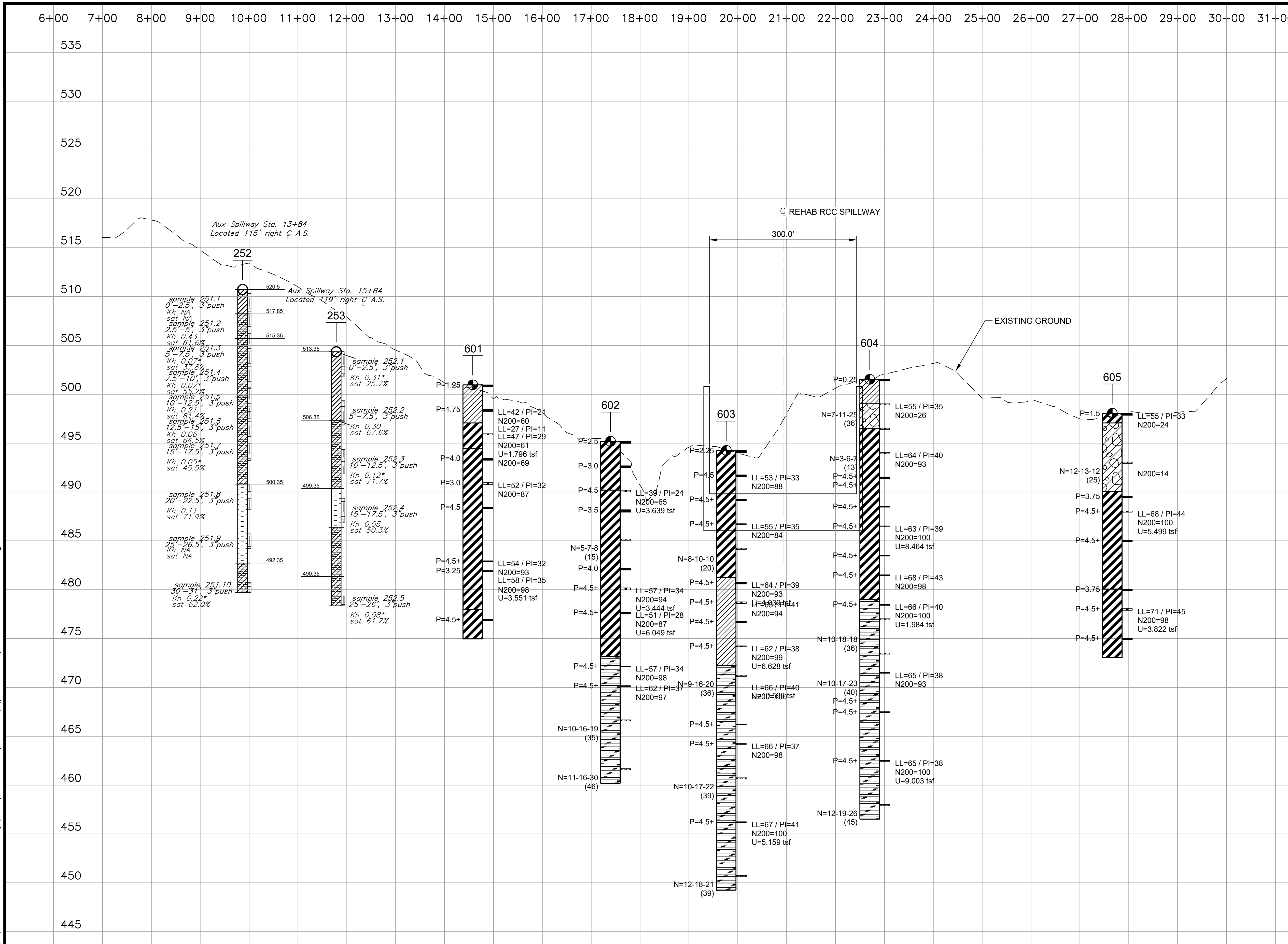

DOWNSTREAM TOE OF SLOPE PROFILE

NOTES:

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GEOLOGIC INVESTIGATIONS - PROFILES (8 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

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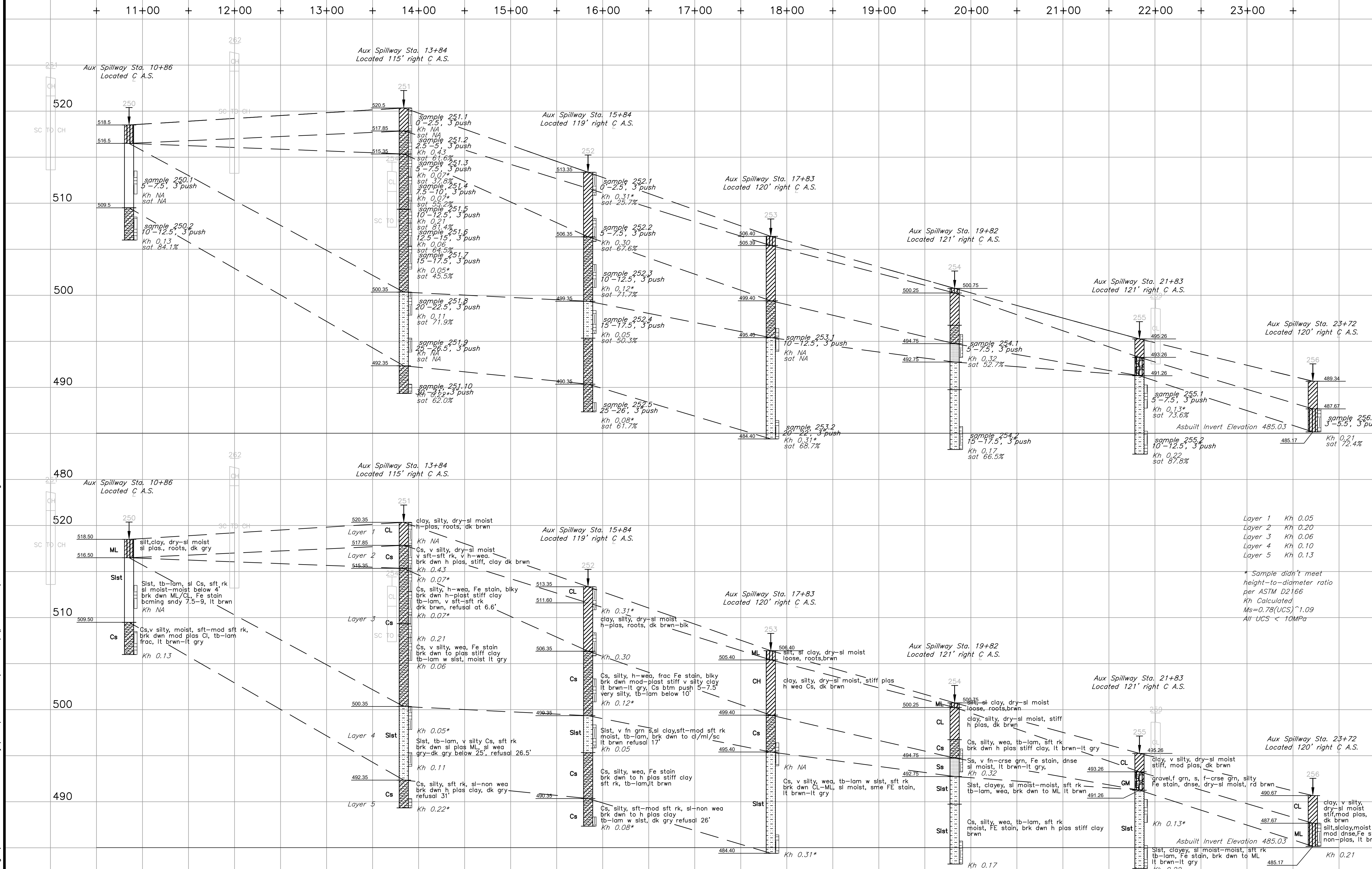

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GEOLOGIC INVESTIGATIONS - PROFILES (9 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States Department of Agriculture
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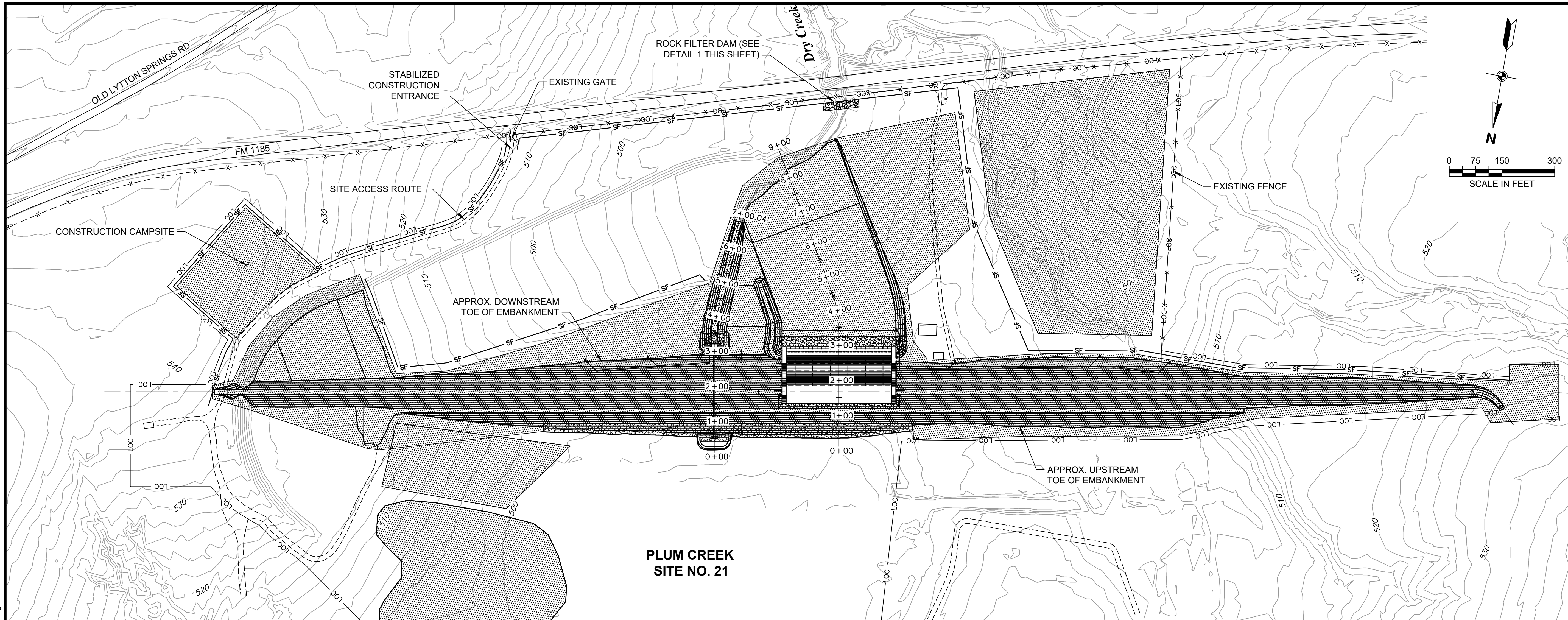
SHEET NO. 82 OF 83



GENERAL NOTES:

1. CONTRACTOR SHALL ADD LOCATION(S) OF SEDIMENT FENCE TO PLAN AS REQUIRED. APPROXIMATELY 6,273 FEET OF SEDIMENT FENCE IS CURRENTLY SHOWN.
2. CONTRACTOR SHALL INDICATE ON THE PLAN ALL PRODUCT SPECIFIC STORAGE AREAS AS DESCRIBED IN THE SWP3.

   THESE AREAS SHALL INCLUDE, BUT ARE NOT LIMITED TO:

   -- EQUIPMENT STORAGE
   -- FUEL STORAGE
   -- HAZARDOUS MATERIAL STORAGE
   -- CONCRETE WASHOUT PITS
3. A DRAWING SHOWING THE LOCATIONS OF THE DRAINAGE WORKS AND ALL POLLUTION CONTROL MEASURES SHALL BE KEPT IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN.
4. IN ADDITION TO THE EMBANKMENT AND OUTLET CHANNEL EARTHWORK AREAS, DISTURBED AREAS WITHIN THE CAMPSITE, STOCKPILE, AND ACCESS ROAD AREAS SHALL HAVE PERMANENT VEGETATION ESTABLISHED.

STABILIZED CONSTRUCTION ENTRANCE:

1. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROVIDED AND MAINTAINED IN ACCORDANCES WITH CONSTRUCTION SPECIFICATION 8 AND 9 AND TxDOT SPECIFICATION 506.
2. THE STABILIZED CONSTRUCTION ENTRANCE SHALL CONSIST OF A MINIMUM OF 8" THICKNESS OF CRUSHED ROCK PREDOMINANTLY 4" TO 8" IN SIZE. THE AGGREGATES SHALL BE CLEAN, HARD, DURABLE, AND FREE FROM ADHERENT COATINGS SUCH AS SALT, ALKALI, DIRT, CLAY, LOAM, SHALE, SOFT OR FLAKY MATERIALS, AND ORGANIC OR INJURIOUS MATTER.

SEDIMENT FILTER:

1. SEDIMENT FILTER SHALL BE FABRIC (GEOTEXTILE) SILT FENCES AS DETAILED IN FIGURE 1 OF ASTM D 6462-19, STANDARD PRACTICE FOR SILT FENCE INSTALLATION AND MAINTENANCE.
2. SEDIMENT FILTER SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS.

   (A) ALONG THE DOWNSTREAM BOUNDARY OF ANY AREA WHICH IS STRIPPED OF EXISTING VEGETATION AND/OR SURFACE MATERIAL DURING ANY PHASE OF CONSTRUCTION ACTIVITY.

   (B) ALONG THE DOWNSTREAM BOUNDARY OF ANY SOIL MATERIAL WHICH IS STOCKPILED DURING ANY PHASE OF CONSTRUCTION ACTIVITY FOR MORE THAN 14 DAYS.

   (C) OTHER AREAS WHICH ARE DETERMINED BY THE CONTRACTING OFFICER TO BE POTENTIAL SILT SOURCES.
3. SEDIMENT FILTER SHALL NOT BE USED WHERE CONCENTRATED FLOWS WHICH EXCESS ONE CFS ARE EXPECTED, OR WHERE DRAINAGE AREA EXCESS TWO ACRES.
4. THE HEIGHT OF SILT FENCES SHALL NOT EXCEED 48 INCHES (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).
5. SPLICES IN THE FILTER FABRIC ARE NOT RECOMMENDED. WHEN JOINTS ARE UNAVOIDABLE, FABRIC SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH LAP.
6. POST SHALL BE SPACED A MAXIMUM OF 6 FEET APART AT THE FENCE LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES).
7. THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED BY USING EXTRA STRENGTH FILTER FABRIC AND POST SPACED AT 4 FEET. IN THIS CASE, THE FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POST.

MAINTENANCE:

1. SEDIMENT FILTER SHALL BE INSPECTED IMMEDIATELY ATFER EACH RAINFALL AND DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. SILT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE SEDIMENT FILTER.
3. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE, THE FABRIC SHALL BE REPLACED PROMPTLY UNLESS INSPECTION REPORTS INDICATE THAT THE REPLACEMENT IS UNNECESSARY.

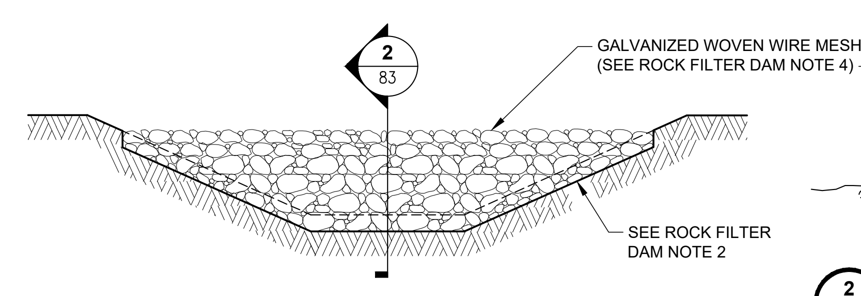
ROCK FILTER DAM:

1. FINAL LOCATION OF THE FILTER DAM SHALL BE AS DIRECTED BY THE ENGINEER.
2. FILTER DAMS SHOULD BE EMBEDDED A MINIMUM OF 4" INTO EXISTING GROUND.
3. USE ONLY OPEN GRADED ROCK THE SAME SIZE AS THE ROCK USED FOR THE STABILIZED CONSTRUCTION ENTRANCE.
4. ROCK FILTER DAM SHALL BE SECURED WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" DIAMETER HEXAGONAL OPENINGS. THE AGGREGATE SHALL BE PLACED ON THE MESH TO THE HEIGHT & SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AT THE UPSTREAM SIDE OVER THE AGGREGATE AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. FOR IN STREAM USE, THE MESH SHOULD BE SECURED OR STAKED TO THE STREAM BED PRIOR TO AGGREGATE PLACEMENT.
5. THE GUIDELINES SHOWN HEREON MAY BE MODIFIED BY THE ENGINEER.
6. WHEN THE SITE IS COMPLETELY STABILIZED,THE DAM AND ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

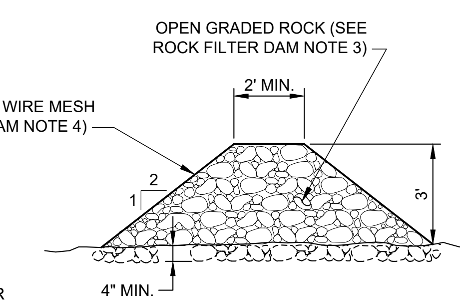
LEGEND:

SF — SILT FENCE

AREAS TO BE VEGETATED



1 / 83 **ROCK FILTER DAM DETAIL**
SCALE: NTS



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SCALE: NTS

REVISIONS		
DATE	APPROVED	TITLE

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 – Sht 82.dwg
DATE CHECKED: 8/4/2021

STORM WATER POLLUTION PREVENTION PLAN

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

USDA United States Department of Agriculture
Natural Resources Conservation Service

DRAWING NO. TX–EN–0754

SHEET NO. 83

OF 83

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