

OVERSIGHT / NHS		
FHWA OVERSIGHT?	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
NATIONAL HIGHWAY SYSTEM?	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES

RELATED PROJECTS:	
P.E. UNDER PROJECT:	NH 2854-088
NUMBER:	13384
CODE:	

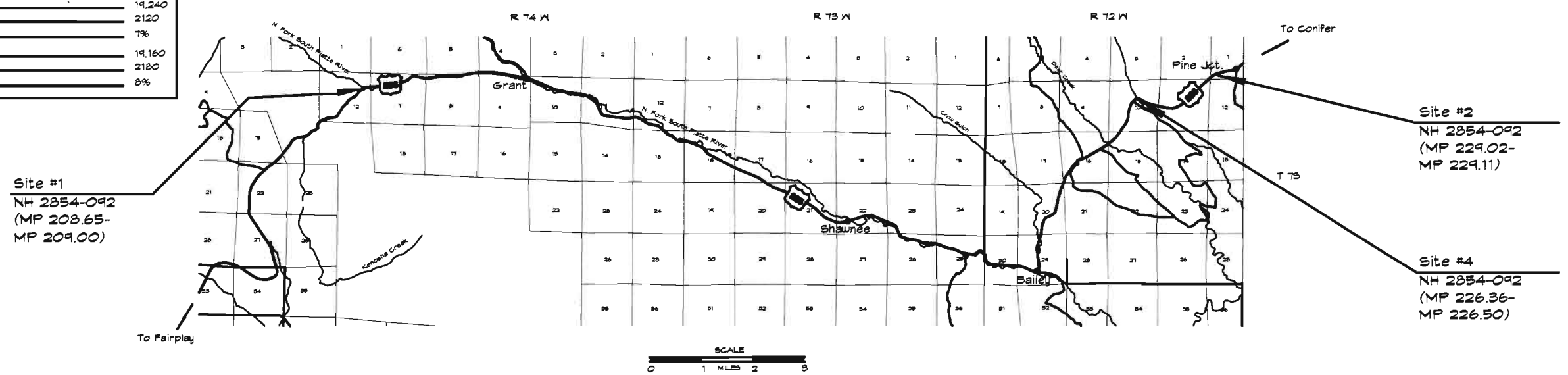
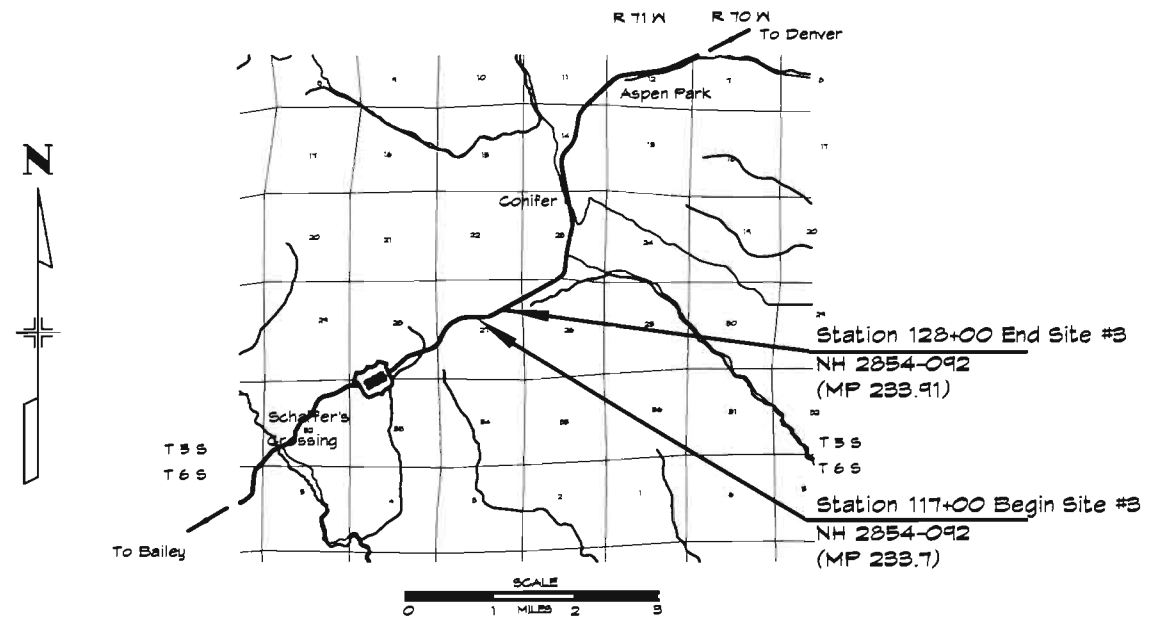
DEPARTMENT OF TRANSPORTATION STATE OF COLORADO

HIGHWAY CONSTRUCTION BID PLANS OF ~~PROPOSED~~ As Constructed

FEDERAL AID PROJECT NO. NH 2854-092 STATE HIGHWAY NO. 285 JEFFERSON & PARK COUNTIES CONSTRUCTION PROJECT CODE NO. 14071

	SHEET NO.
TITLE SHEET	1
STANDARD PLANS LIST	2
TYPICAL SECTIONS	3
GENERAL NOTES	4
SUMMARY OF APPROXIMATE QUANTITIES	5-7
SITE 1 BANK STABILIZATION	8-10
SITE 2 PLAN AT WOODSIDE	11
SITE 3 SURFACING & MISC. TABULATIONS	12
SITE 3 PLAN	13-15
RETAINING WALL DETAILS	16-17 16-17X
SITE 4 ROLAND VALLEY	18
SUMMARY OF EARTHWORK QUANTITIES	19
STORMWATER MANGEMENT PLANS	20
TRAFFIC PLANS	21-24
SURVEY SHEETS	25-27
SITE 3 STRUCTURE CROSS SECTION	28
SITE 3 CROSS SECTIONS	29-36

STATION / MILE POST	ROADWAY FEET
Site #1	
Begin (MP 208.75)	N/A
End (MP 209.00)	
Site #2	
Begin Station 1011+44 (MP 229.02)	440
End Station 1016+34 (MP 229.11)	
Site #3	
Begin Station 117+00 (MP 233.70)	1100
End Station 128+00 (MP 233.91)	
Site #4	
Begin Station 1+00 (MP 226.36)	725
End Station 8+25 (MP 226.50)	
TOTAL	
SUMMARY OF PROJECT LENGTH	
ROADWAY (NET LENGTH)	2315 FEET / 0.44 MILES
PROJECT GROSS LENGTH	2315 FEET / 0.44 MILES
DESIGN DATA	
MINIMUM RADIUS OF CURVE	N/A
MAXIMUM GRADE	N/A
MINIMUM S.S.D. HORIZONTAL	N/A
MINIMUM S.S.D. VERTICAL	N/A
MAXIMUM DESIGN SPEED	N/A
2012 DESIGN TRAFFIC	
Site 1 AADT	3,860
DHV	620
% TRUCKS	13%
Site 2 AADT	19,160
DHV	2180
% TRUCKS	8%
Site 3 AADT	19,240
DHV	2120
% TRUCKS	7%
Site 4 AADT	19,160
DHV	2180
% TRUCKS	8%



Computer File Information		Index of Revisions		Colorado Department of Transportation		As Constructed		CONTRACT INFORMATION		Project No./Code		
Creation Date:	11/21/2001	Initials:	ds					CONTRACTOR:	K B Construction, Inc.		NH 2854-092	
Last Modification Date:	6/27/2002	Initials:	krm					RESIDENT ENGINEER:	RRH			
Full Path:	unit 1313/13384/pre./plans/Richmond							PROJECT ENGINEER:	MAS		14071	
Drawing File Name:	13384TITLE.DWG							PROJECT STARTED:	8/27/2002		ACCEPTED:	11/06/2002
Acad Ver.	2002	Scale:		Units:	English			COMMENTS:			Sheet Number	1

Region I

9858 W. Girton Dr.
Lakewood, Colorado 80227
Phone: 303-988-5474 FAX: 303-988-0880


RRH

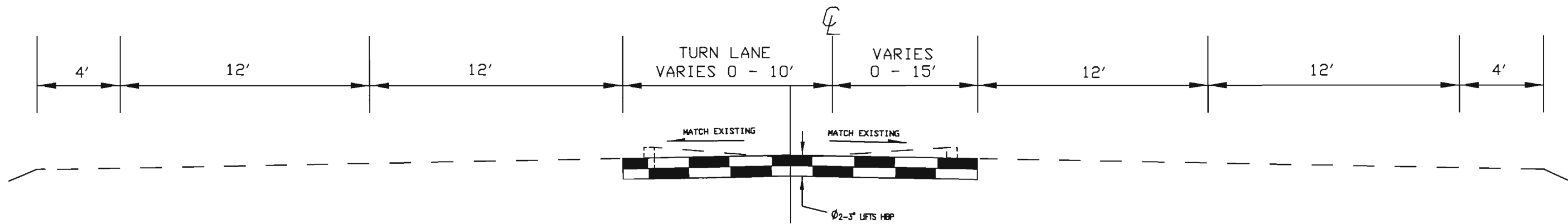
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<input checked="" type="checkbox"/> M-100-1	STANDARD SYMBOLS	1	<input type="checkbox"/> M-607-1	WIRE FENCES AND GATES (3 SHEETS)	78-80	<input checked="" type="checkbox"/> S-612-1	TYPICAL DELINEATOR INSTALLATIONS (5 SHEETS)	109-113
<input checked="" type="checkbox"/> M-203-1	APPROACH ROADS	2	<input type="checkbox"/> M-607-2	CHAIN LINK FENCE (3 SHEETS)	81-83	<input checked="" type="checkbox"/> S-614-1	TYPICAL GROUND SIGN PLACEMENT	114
<input type="checkbox"/> M-203-2	DITCH TYPES	3	<input type="checkbox"/> M-607-3	BARRIER FENCE	84	<input checked="" type="checkbox"/> S-614-2	CLASS I GROUND SIGN INSTALLATIONS	115
<input checked="" type="checkbox"/> M-203-10	SUPERELEVATION CROWNED HIGHWAYS	4	<input type="checkbox"/> M-607-4	DEER FENCE AND GATES (2 SHEETS)	85-86	<input type="checkbox"/> S-614-3	CLASS II GROUND SIGN INSTALLATIONS	116
<input type="checkbox"/> M-203-11	SUPERELEVATION DIVIDED HIGHWAYS SHOULDER PIVOT	5	<input type="checkbox"/> M-607-10	PICKET SNOW FENCE	87	<input type="checkbox"/> S-614-4	CLASS III SIGNS, SHEET ALUMINUM PANELS (3 SHEETS)	117-119
<input type="checkbox"/> M-203-12	SUPERELEVATION STREETS	6	<input type="checkbox"/> M-608-1	CURB RAMPS	88	<input checked="" type="checkbox"/> S-614-5	BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS (2 SHEETS)	120-121
<input type="checkbox"/> M-203-13	SUPERELEVATION DIVIDED HIGHWAYS CENTER PIVOT	7	<input checked="" type="checkbox"/> M-609-1	CURBS, GUTTERS, AND SIDEWALKS (2 SHEETS)	89-90	<input type="checkbox"/> S-614-6	CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS)	122-123
<input checked="" type="checkbox"/> M-206-1	EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)	8-9	<input type="checkbox"/> M-611-1	CATTLE GUARD (2 SHEETS)	91-92	<input type="checkbox"/> S-614-10	TYPICAL MARKER ASSEMBLY INSTALLATIONS	124
<input type="checkbox"/> M-206-2	EXCAVATION AND BACKFILL FOR BRIDGES (2 SHEETS)	10-11	<input type="checkbox"/> M-613-1	CONVENTIONAL HIGHWAY LIGHTING (3 SHEETS)	93-95	<input type="checkbox"/> S-614-11	MILEPOST SIGN AND INSTALLATION	125
<input checked="" type="checkbox"/> M-208-1	TEMPORARY EROSION CONTROL (7 SHEETS)	12-18	<input type="checkbox"/> M-613-2	HIGH MAST LIGHTING (2 SHEETS)	96-97	<input checked="" type="checkbox"/> S-614-12	STRUCTURE NUMBER INSTALLATION (BRIDGE INFORMATION SHEET)	126
<input checked="" type="checkbox"/> M-210-1	MAILBOX SUPPORTS (2 SHEETS)	19-20	<input type="checkbox"/> M-614-1	RUMBLE STRIPS (2 SHEETS)	98-99	<input type="checkbox"/> S-614-14	FLASHING BEACON AND SIGN INSTALLATION (2 SHEETS)	127-128
<input checked="" type="checkbox"/> M-214-1	PLANTING DETAILS	21	<input checked="" type="checkbox"/> M-615-1	EMBANKMENT PROTECTOR, TYPE 3	100	<input type="checkbox"/> S-614-20	TYPICAL POLE MOUNT SIGN INSTALLATION	129
<input type="checkbox"/> M-412-1	CONCRETE PAVEMENT JOINTS (3 SHEETS)	22-24	<input type="checkbox"/> M-615-2	EMBANKMENT PROTECTOR, TYPE 5	101	<input type="checkbox"/> S-614-21	CONCRETE BARRIER SIGN POST INSTALLATIONS	130
<input type="checkbox"/> M-506-1	GABIONS AND SLOPE MATTRESS	25	<input type="checkbox"/> M-616-1	INVERTED SIPHON	102	<input type="checkbox"/> S-614-22	TYPICAL MULTI-SIGN INSTALLATIONS	131
<input type="checkbox"/> M-510-1	STRUCTURAL PLATE CULVERT PIPE H-20 LOADING	26	<input checked="" type="checkbox"/> M-620-1	FIELD LABORATORY, CLASS 1	103	<input type="checkbox"/> S-614-40	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS (5 SHEETS)	132-136
<input type="checkbox"/> M-601-1	SINGLE CONCRETE BOX CULVERT (2 SHEETS)	27-28	<input type="checkbox"/> M-620-2	FIELD LABORATORY, CLASS 2	104	<input type="checkbox"/> S-614-50	OVERHEAD SIGNS MONOTUBE (12 SHEETS)	137-148
<input type="checkbox"/> M-601-2	DOUBLE CONCRETE BOX CULVERT (2 SHEETS)	29-30	<input type="checkbox"/> M-620-11	FIELD OFFICE, CLASS 1	105	<input checked="" type="checkbox"/> S-627-1	TYPICAL PAVEMENT MARKINGS (5 SHEETS)	149-153
<input type="checkbox"/> M-601-3	TRIPLE CONCRETE BOX CULVERT (2 SHEETS)	31-32	<input checked="" type="checkbox"/> M-620-12	FIELD OFFICE, CLASS 2	106	<input checked="" type="checkbox"/> S-630-1	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (10 SHEETS)	154-163
<input type="checkbox"/> M-601-10	HEADWALL FOR PIPE CULVERTS	33	<input type="checkbox"/> M-629-1	SURVEY MONUMENTS (2 SHEETS)	107-108	<input checked="" type="checkbox"/> S-630-2	BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) & VERTICAL PANELS	164
<input type="checkbox"/> M-601-11	TYPE "S" SADDLE HEADWALL FOR PIPE CULVERTS	34				<input type="checkbox"/> S-630-3	FLASHING BEACON (PORTABLE) DETAILS	165
<input type="checkbox"/> M-601-12	HEADWALLS AND CULVERT OUTLET PAVING	35						
<input type="checkbox"/> M-601-20	WINGWALLS FOR PIPE OR BOX CULVERTS	36						
<input checked="" type="checkbox"/> M-603-1	METAL AND PLASTIC CULVERT PIPE (2 SHEETS)	37-38						
<input type="checkbox"/> M-603-2	REINFORCED CONCRETE PIPE	39						
<input type="checkbox"/> M-603-3	PRECAST CONCRETE BOX CULVERT	40						
<input type="checkbox"/> M-603-10	CONCRETE AND METAL END SECTIONS (2 SHEETS)	41-42						
<input checked="" type="checkbox"/> M-604-10	INLET, TYPE C	43						
<input type="checkbox"/> M-604-11	INLET, TYPE D	44						
<input type="checkbox"/> M-604-12	CURB INLET, TYPE R (2 SHEETS)	45-46						
<input type="checkbox"/> M-604-13	CONCRETE INLET, TYPE 13	47						
<input type="checkbox"/> M-604-20	MANHOLES (3 SHEETS)	48-50						
<input type="checkbox"/> M-604-25	VANE GRATE INLET WITH FRAME AND CONCRETE APRON (5 SHEETS)	51-55						
<input type="checkbox"/> M-605-1	SUBSURFACE DRAINS	56						
<input checked="" type="checkbox"/> M-606-1	GUARDRAIL, TYPE 3, W-BEAM (15 SHEETS)	57-71						
<input type="checkbox"/> M-606-12	GUARDRAIL, TYPE 4, CONCRETE BARRIER (2 SHEETS)	72-73						
<input type="checkbox"/> M-606-13	GUARDRAIL, TYPE 7, F-SHAPE BARRIER (4 SHEETS)	74-77						

THE STANDARD PLAN SHEETS INDICATED HEREON BY A MARKED BOX ARE TO BE USED TO CONSTRUCT THIS PROJECT.

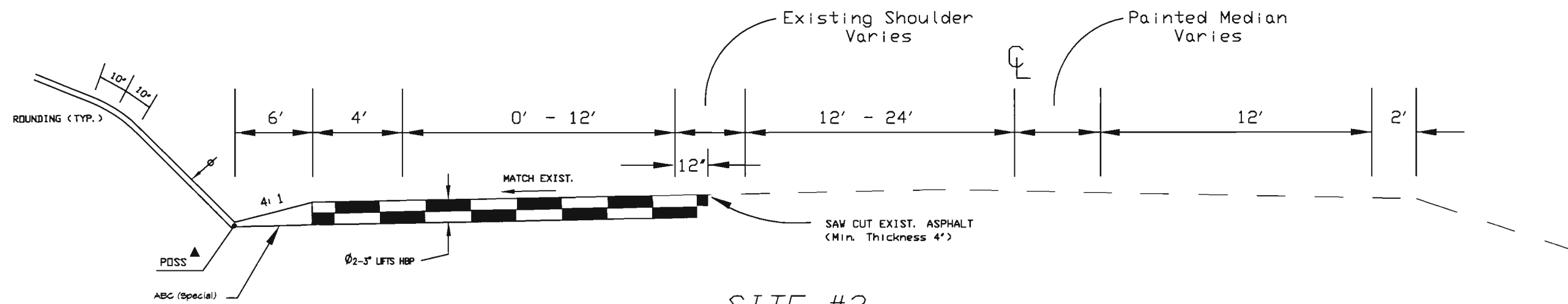
COLORADO
 DEPARTMENT OF TRANSPORTATION

STANDARD PLANS LIST
M & S STANDARDS
OCTOBER 1, 2000

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		STANDARD PLANS LIST		Project No./Code	
Creation Date:	11/27/01 Initials: ds	<input type="checkbox"/>		 9858 W. Girton Drive Lakewood, Colorado 80227 Phone: 303-988-5474 FAX: 303-980-9860		No Revisions: 11/06/2002				NH 2854-092	
Last Modification Date:	6/27/02 Initials: krrm	<input type="checkbox"/>				Region 1		Revised:		14071	
Full Path:	1313/13384/pre.../plans/Rich/SPL.dwg	<input type="checkbox"/>		RRH				Void:		Sheet Number	
Drawing File Name:	13384spl.dwg	<input type="checkbox"/>				Sheet Subset:		Subset Sheets: XXX of XXX		2	
Acad Ver.	2002	Scale:	NA	Units:		NA					



SITE #2
 STA. 1011+44 TO STA. 1016+34



SITE #3
 STA. 117+00 TO STA. 128+00

TYPICAL SECTION NOTES

- THE DEPTH AND WIDTH OF THE SIDE DITCH SHALL BE VARIED WHERE NECESSARY IN ORDER TO PROVIDE PROPER DRAINAGE.
- THE CONTRACTOR WILL BE REQUIRED TO PLACE 6' OF TOPSOIL TO THIS LINE AFTER COMPLETION OF UNCLASSIFIED EXCAVATION.
- ▲ SEE ROADWAY CROSS SECTIONS FOR SLOPES.
- BREAK POINTS ON SLOPES AND IN BOTTOMS OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR A PLEASING APPEARANCE.
- Ø APPROXIMATE THICKNESS OF HBP

STABILIZATION DATA


AADT (2001)	15,716
10-year flexible 18K ESAL's	1,900,000
Initial Serviceability	4.5
Terminal serviceability	2.5
Overall Deviation	0.44
Reliability	90%
Roadbed Soil Resilient Modulus	25,317 psi
R-Value	70
Design Structural Number	2.38
Minimum HBP Thickness = 2.38/0.44	5.4 Use 6.0'

Computer File Information		Index of Revisions		Colorado Department of Transportation 9858 W. Girton Drive Lakewood, Colorado 80227 Phone: 303-988-5474 FAX: 303-980-9860 Region 1	As Constructed	TYPICAL SECTIONS		Project No./Code	
Creation Date: 11/27/01	Initials: DS	<input type="checkbox"/>	<input type="checkbox"/>		No Revisions: 11/06/2002			NH 2854-092	
Last Modification Date: 6/13/02	Initials: DS	<input type="checkbox"/>	<input type="checkbox"/>	Revised: Void:	Designer: DS	Structure Numbers	14071		
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Drawing File Name: 13384TYPICAL.DWG		<input type="checkbox"/>	<input type="checkbox"/>		Sheet Subset:	Subset Sheets:	of		
Acad Ver. 2002	Scale: NONE	Units: FEET	<input type="checkbox"/>	<input type="checkbox"/>					

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY BID ITEMS										STRUCTURES		PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.											PLAN	AS CONST.
			202-00001	Removal of Structure	EACH	1	1											1	1
			202-00035	Removal of Pipe	LF	44	44											44	44
			202-00201	Removal of Curb	LF	76	48											76	48
			202-00203	Removal of Curb and Gutter	LF	842	842											842	842
			202-00220	Removal of Asphalt Mat	SY	600	561											600	561
			202-00250	Removal of Pavement Marking	SF	490	589											490	589
			202-00810	Removal of Ground Sign	EACH	1	Deleted per CDOT Form #105 No. 7											1	deleted
			202-01300	Removal of End Anchorage	EACH	4	4											4	4
			203-00010	Unclassified Excavation (Complete In Place)	CY	2,570	2,570											2,570	2,570
			203-01510	Bockhoe	HOUR	32	48											32	48
			203-01597	Potholing	HOUR	10	13											10	13
			203-02330	Laborer	HOUR	184	17											184	17
			206-00000	Structure Excavation	CY									525	525			525	
			206-00200	Structure Backfill (Class 2)	CY									310	310			310	
			207-00205	Topsoil	CY	970	965											970	965
			208-00010	Erosion Bales	EACH	50	8											50	8
			208-00015	Sand Bag	EACH	110	Deleted per CDOT Form #105 No. 7											110	deleted
			208-00020	Silt Fence	LF	300	404											300	404
			208-00200	Erosion Control Supervisor	L S	1	1											1	1
			210-00010	Reset Mailbox Structure	EACH	1	1											1	1
			210-00810	Reset Ground Sign	EACH	4	5											4	5
			210-04200	Adjust Guardrail	LF	618	618											618	618
			212-00006	Seeding (Native)	ACRE	3.243	1.4											3.243	1.4
			213-00002	Mulching (Weed Free Hay)	ACRE	2.4	0.7											2.4	0.7
			213-00061	Mulch Tackifier	LB	360	102											360	102
			213-00700	Landscape Boulder	EACH	33	33											33	33
			214-01010	Brush Layer Cutting	EACH	640	Deleted per CDOT Form #105 No. 7											640	deleted
			214-01030	Wattle	EACH	29	29											29	29
			216-00041	Soil Retention Blanket (Straw/Coconut)	SY	3,841	3,826											3,841	3,826
			304-09000	Aggregate Base Course (Special)	CY	60	53											60	53
			403-00720	Hot Bituminous Pavement (Patching) (Asphalt)	TON	230	218.72											230	218.72
			403-34721	Hot Bituminous Pavement (Grading SX) (75) (PG 58-28)	TON	870	Deleted per CDOT Form #105 No. 7											870	deleted

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Creation Date: 02-Jul-2002	Initials:
Last Modification Date:	Initials:
Full Path: \\13384\Precon\Plans\Working Files	
Drawing File Name: 14071_Sheet5	
Acad Ver. 2002	

Sheet Revisions	

Colorado Department of Transportation

 9858 W. Girton Dr.
 Lakewood Colorado 80227
 Phone: 303-988-5474 Fax: 303-980-9860
 Region 1 RRH

As Constructed
No Revisions:
Revised: 11/06/2002
Void:

SUMMARY OF APPROXIMATE QUANTITIES	
Designer:	Structure Numbers:
Detailer:	Subset Sheets:
Sheet Subset:	


Project No./Code	
NH 2854-092	
14071	
Sheet Number:	5

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY BID ITEMS										STRUCTURES		PROJECT TOTALS			
BOOK	PAGE	SHEET				PLAN	AS CONST.											PLAN	AS CONST.	PLAN	AS CONST.
			411-10255	Emulsified Asphalt (Slow-Setting)	GAL	310	37											310	37		
			506-00212	Riprap (12 Inch)	CY	5.2	5											5.2	5		
			506-00224	Riprap (24 Inch)	CY	20		Deleted per CDOT Form #105 No. 7												20	deleted
			507-00400	Bituminous Slope and Ditch Paving (Asphalt)	TON	34	6.23											34	6.23		
			601-03050	Concrete Class D (Wall)	CY									108	133			108			
			602-00020	Reinforcing Steel (Epoxy Coated)	LB									17,730	17,730			17,730			
			603-10180	18 Inch Corrugated Steel Pipe	LF	56	49											56	49		
			603-10240	24 Inch Corrugated Steel Pipe	LF	15	15											15	15		
			603-10480	48 Inch Corrugated Steel Pipe	LF	20	20											20	20		
			604-00305	Inlet Type C (5 Foot)	EACH	2	2											2	2		
			606-02001	End Anchorage (Slotted Rail Terminal)	EACH	4	4											4	4		
			607-11525	Fence (Plastic)	LF	700	370											700	370		
			609-21011	Curb and Gutter Type 2 (Section I-M)	LF	87	103											87	103		
			609-60011	Curb Type 6 (Section M)	LF	88	51											88	51		
			612-00001	Delineator (Type I)	EACH	7	3											7	2		
			612-00003	Delineator (Type III)	EACH	3	5											3	5		
			614-00011	Sign Panel (Class I)	SF	3	3											3	3		
			614-00012	Sign Panel (Class II)	SF	12		Deleted per CDOT Form #105 No. 7												12	deleted
			614-01502	Steel Sign Post (2 Inch Round)	LF	19	13											19	13		
			614-01582	Steel Sign Post (2.5 Inch Round)(Slipbase Sch. 80)	LF	12	12											12	12		
			615-00030	Embankment Protector Type 3	EACH	3	2											3	3		
			617-00012	12 Inch Culvert Pipe	LF	177	112											177	112		
			620-00002	Field Office (Class 2)	EACH	1	1											1	1		
			620-00011	Field Laboratory (Class 1)	EACH	1		Deleted per CDOT Form #105 No. 7												1	deleted
			620-00020	Sanitary Facility	EACH	2	2											2	2		
			625-00000	Construction Surveying	L S	1	1											1	1		
			626-00000	Mobilization	L S	1	1											1	1		
			626-01000	Public Information Services	L S	1	1											1	1		
			627-00005	Epoxy Pavement Marking	GAL	40	20											40	20		
			627-00012	Pavement Marking Paint (Low VOC Solvent Base)	GAL	5	0											5	0		
			630-00000	Flagging	HOUR	1,400	959											1,400	959		
			630-00007	Traffic Control Inspection	DAY	25	21											25	21		
			630-00012	Traffic Control Management	DAY	35	40											35	40		

Computer File Information	
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Acad Ver. 2002	

Sheet Revisions	

Colorado Department of Transportation



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Region 1 RRH

As Constructed	SUMMARY OF APPROXIMATE QUANTITIES	
No Revisions:	Designer:	Structure Numbers
Revised: 11/06/2002	Detailer:	Sheet Subset:
Void:	Sheet Subset:	Subset Sheets:


Project No./Code	
NH 2854-092	
14071	
Sheet Number:	6

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY BID ITEMS										STRUCTURES				PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.													PLAN	AS CONST.
			630-80341	Construction Traffic Sign (Panel Size A)	EACH	4	5											4	5		
			630-80342	Construction Traffic Sign (Panel Size B)	EACH	41	35											41	35		
			630-80343	Construction Traffic Sign (Panel Size C)	EACH	20	14											20	14		
			630-80358	Advance Warning Flashing or Sequencing Arrow Panel (C Type)	EACH	3	2											3	2		
			630-80359	Portable Message Sign Panel	DAY	20	31											20	31		
			630-80360	Drum Channelizing Device	EACH	40	40											40	40		
			630-80370	Concrete Barrier (Temporary)	LF	100	120											100	120		
			630-80380	Traffic Cone	EACH	200	200											200	200		
			700-70010	FORCE ACCOUNT =====																	
				F/A Minor Contract Revisions	F A	1	Deleted per CDOT Form #105 No. 7											+	deleted		
				F/A OJT Pilot	F A	1	Deleted per CDOT Form #105 No. 7											+	deleted		
				F/A ESB Program	F A	1	Deleted per CDOT Form #105 No. 7											+	deleted		
				F/A Erosion Control	F A	1	Deleted per CDOT Form #105 No. 7											+	deleted		
			403-33741	Hot Bituminous Paving (Gr 5) (T5) (PG 64-22)		350.90	MCR #1 CMO #2											350.90			

Computer File Information	
Creation Date: 02-Jul-2002	Initials:
Last Modification Date:	Initials:
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Acad Ver. R14 W	

Sheet Revisions	

Colorado Department of Transportation



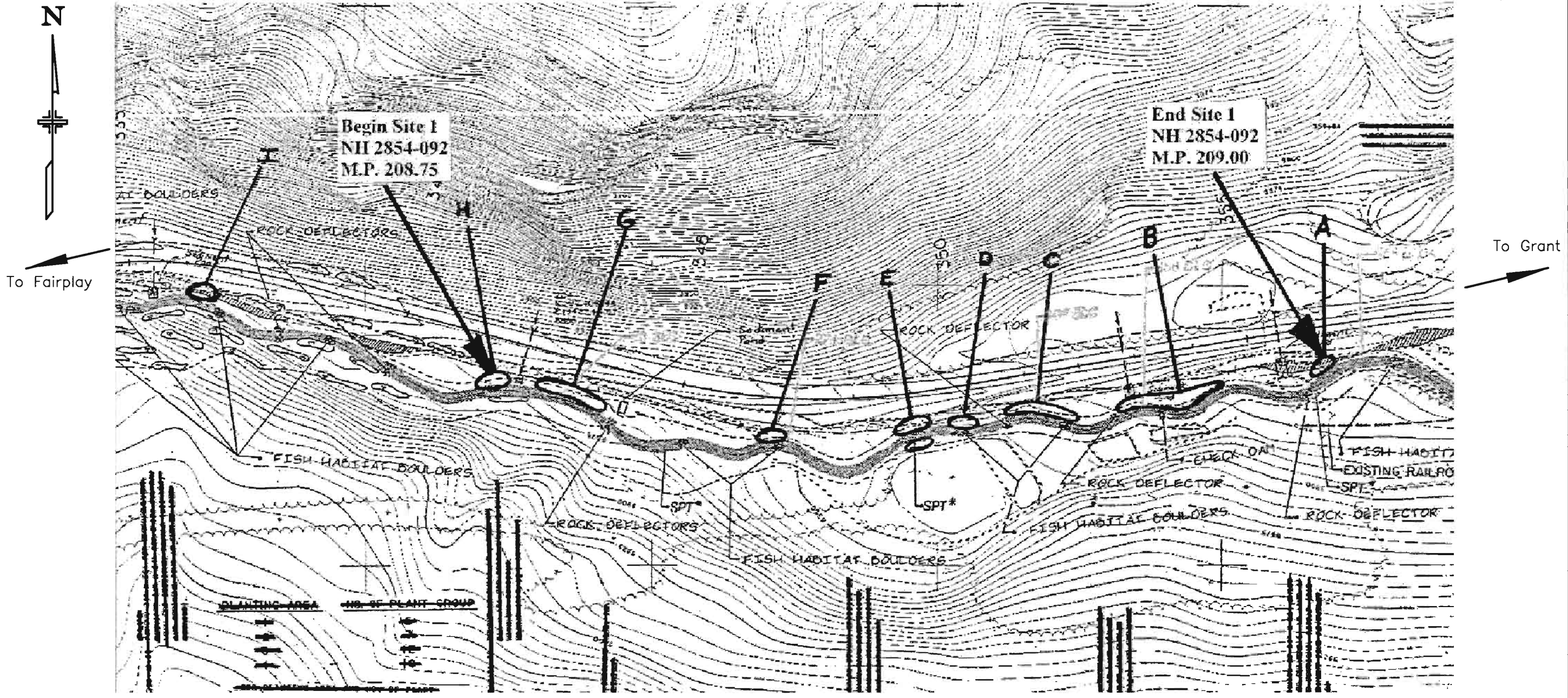
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Lakewood Colorado 80227
Phone: 303-988-5474 Fax: 303-980-9860

Region 1 RRH

As Constructed
No Revisions:
Revised: 11/06/2002
Void:

SUMMARY OF APPROXIMATE QUANTITIES	
Designer:	Structure Numbers
Detailer:	Subset Sheets:
Sheet Subset:	

Project No./Code	
NH 2854-092	
14071	
Sheet Number:	7



Scale: 1" = 200'

Computer File Information		Index of Revisions		Colorado Department of Transportation		As Constructed		SITE 1		Project No./Code	
Creation Date:	3/20/02	Initials:	DS			No Revisions: 11/06/2002		BANK STABILIZATION		NH 2854-092	
Last Modification Date:	6/26/02	Initials:	DS			Revised:		Designer:	Structure	14071	
Full Path:	1313/13384/Pre./Plans/Rich/Erosion					Void:		Detailer:	Numbers	Sheet Number	
Drawing File Name:	13384erosionplan.DWG					Region I		RRH	Sheet Subset:	Subset Sheets:	of
Acad Ver.	2002	Scale:	NONE	Units:	ENGLISH						8

LANDSCAPE TABULATION	UNIT	SITE A	SITE B	SITE C	SITE E	SITE F	SITE G	SITE H	AS DIRECTED	TOTAL
203 Backhoe	Hour	---	32	---	---	---	---	---	---	32
203 Embankment material (CIP)*	CY	---	50	---	---	---	---	---	---	50
203 Laborer	Hour	---	---	60	---	20	---	80	24	184
208 Sand bag	Each	---	40	---	---	---	---	50	20	110
212 Seeding (native)	Acre	---	0.02	0.01	---	0.003	---	0.01	2	2.043
213 Mulching (weed free hay)	Acre	---	---	---	---	---	---	---	2	2
213 Mulch tackifier	Lbs	---	---	---	---	---	---	---	300	300
213 Landscape boulder	Each	---	33	---	---	---	---	---	---	33
214 Brush layer cuttings	Each	25	100	80	100	15	30	90	200	640
214 Wattles	Each	---	---	15	---	5	---	9	---	29
216 Soil retention blanket (straw/coconut)	SY	---	110	60	---	15	---	50	---	235
506 Riprap (24 in)	CY	---	---	---	---	---	---	---	20	20
607 Fence (plastic)	LF	---	---	---	---	---	---	---	500	500

*For information only. Quantity carried to Summary of Earthwork Quantities.

LOCATION	SCOPE OF WORK
Site A MP 208.800	Deleted per CDOT Form #105 No. 7 Plant brush layer cuttings
Site B MP 208.956	Trench in 3' dia. boulders at cliff and place riprap to hold fill, seed, blanket.
Site C MP 208.911	West 30' long segment of undercutting lay back about 1-3' with wattle reinforcement at base: cuttings, seed, blanket.
Site E MP 208.866	Deleted per CDOT Form #105 No. 7 Plant cuttings on south side of stream.
Site F MP 208.837	Place wattles, minor lay back of slope, cuttings, seed, blanket.
Site G MP 208.771	Deleted per CDOT Form #105 No. 7 Plant brush layer cuttings
Site H MP 208.730	Place wattles, lay slope back approx. 7', seed, blanket, cuttings. Remove debris from channel.

SITE NOTES

Prior to construction commencing a preconstruction conference shall take place with the engineer, contractor, Region environmental, hydraulic engineer and landscape architect in attendance. At the meeting access points and areas for protection shall be identified. Any vegetation needing protection shall be fenced with orange protective fence prior to work commencing.

Seed, mulch, mulch tackifier and blanket shall be placed per the Stormwater Management Sheet.

Heavy equipment access is only allowed at site B.

SITE A, E, G

Place brush layer cuttings along stream in areas indicated by the CDOT landscape architect.

SITE B

Prior to commencing work clear trees, as directed.

Trench 3 foot diameter boulders, 1/3 to 1/2 their depth, at stream edge. Place sandbags in front of boulders to prevent sediment from encroaching into the stream. Fill behind boulders by bringing the cliff face down to form a slope. Seed and blanket finished slope. Place brush layer cuttings behind boulders. See detail.

SITE NOTES (Cont.)

SITE C and F


Place wattles at stream edge, as directed. Site C lay back the slope 1 to 3 feet to tie into wattles. Site F, some minor lay back of slope shall be accomplished to tie into the wattles. Hand work to lay back slope shall be paid for by laborer hours. Place brush layer cuttings behind and into wattles. Seed and blanket final slope. See detail.

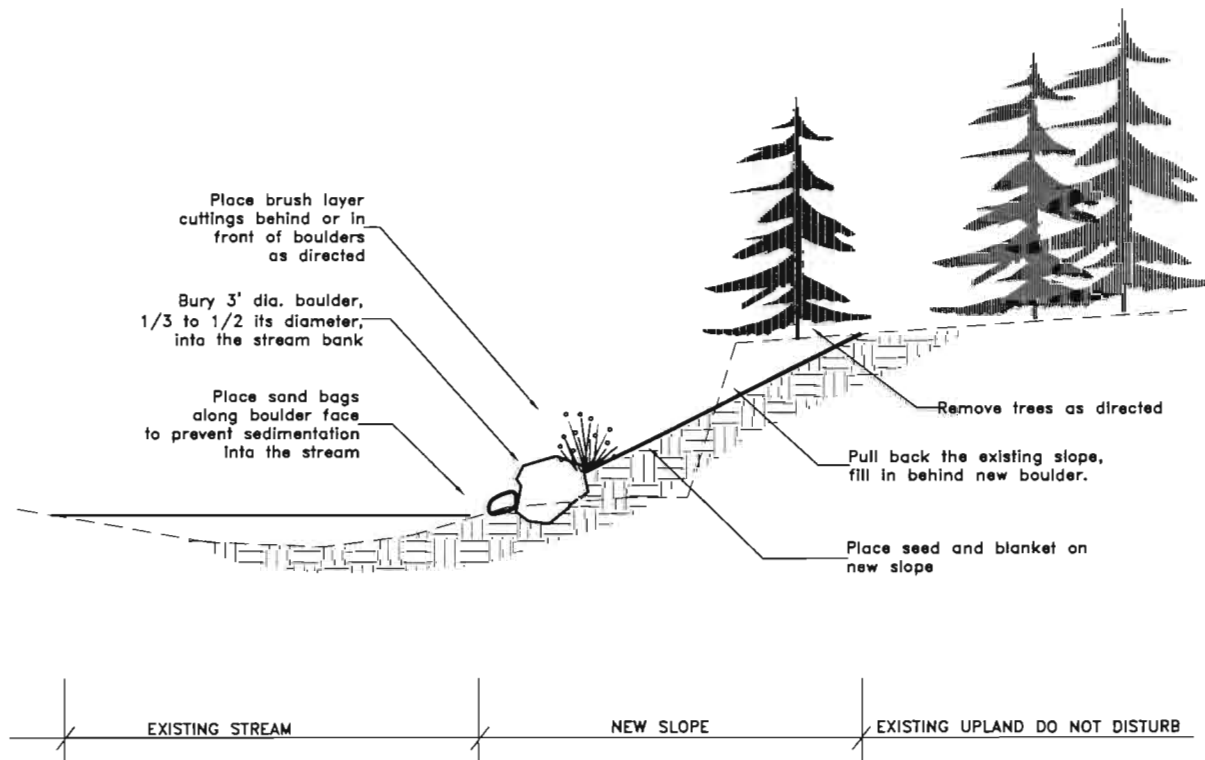
SITE H

Prior to commencing work, place sand bags adjacent to stream to prevent sedimentation into the water.

Place wattles at edge of stream, as directed. Lay back slope approx. 7 feet to tie into the wattles. There is no equipment access at this site. Hand work to lay back slope shall be paid for by laborer hours. Place brush layer cuttings behind and into the wattles. Seed and blanket the final slope.

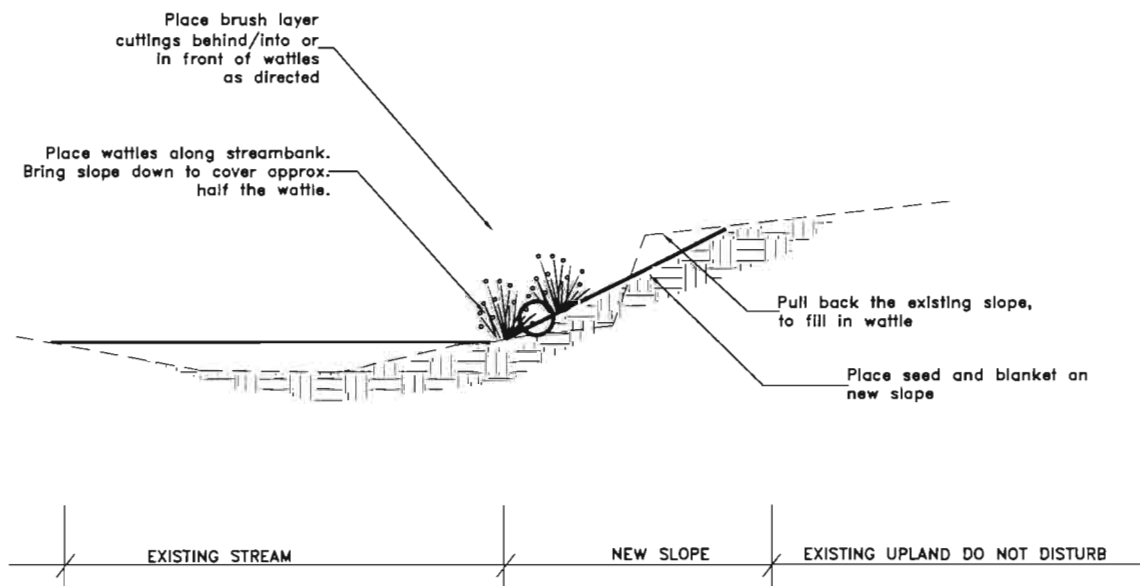
Existing debris in the channel, at this location, shall be removed as directed. Cleaning of debris shall be paid for as laborer hours.

Computer File Information		Sheet Revisions		 Colorado Department of Transportation 9858 W. Girton Dr. Lakewood Colorado 80227 Phone: 303-988-5474 FAX: 303-980-9860 Region 1	As Constructed		Site 1 Bank Stabilization		Project No./Code		
Creation Date: June 02	Initials: CVC	(R-1)			No Revisions:			NH 2854-092			
Last Modification Date: 6/27/02	Initials: krm	(R-2)		Revised: 11/06/2002	Designer: CVC			14071			
Full Path: Region 1		(R-3)		Void:	Detailer: CVC				Sheet Number 9		
Drawing File Name: 14071bankstabilization.dwg		(R-4)		Sheet Subset:		Subset Sheets: of					
Acad Ver.: Scale: NTS Units:		(R-5)		RRH							



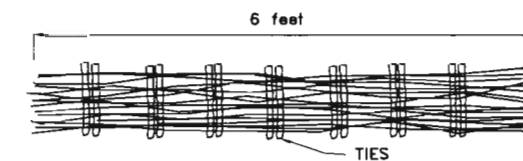
Conceptual Cross-section Site B

not to scale



Conceptual Cross-section Site C and F

not to scale




NOTE:
TO PREPARE WATTLE: BIND TOGETHER TIGHT BUNDLES OF LIVE BRUSH WITH TIPS EVENLY DISTRIBUTED THROUGHOUT THE LENGTH 18 INCHES IN DIAMETER, TIED 12" TO 15" APART.

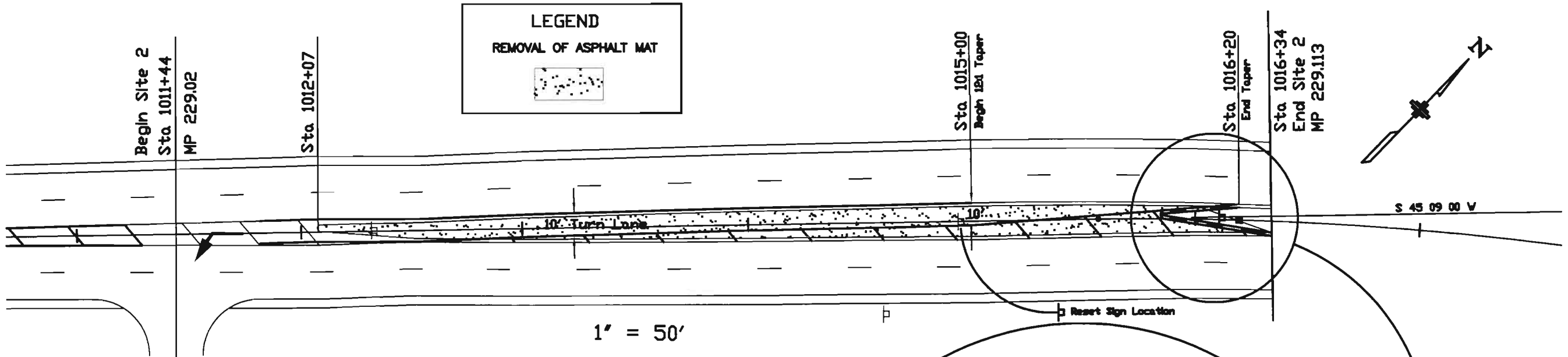


1. STAKE ON CONTOUR
2. ADD STAKES (1"x1"x24") THROUGH AND ADJACENT TO BUNDLES.
3. COVER WATTLE WITH SOIL, WATER IN AND SETTLE IN SOIL.

Wattle Detail

not to scale

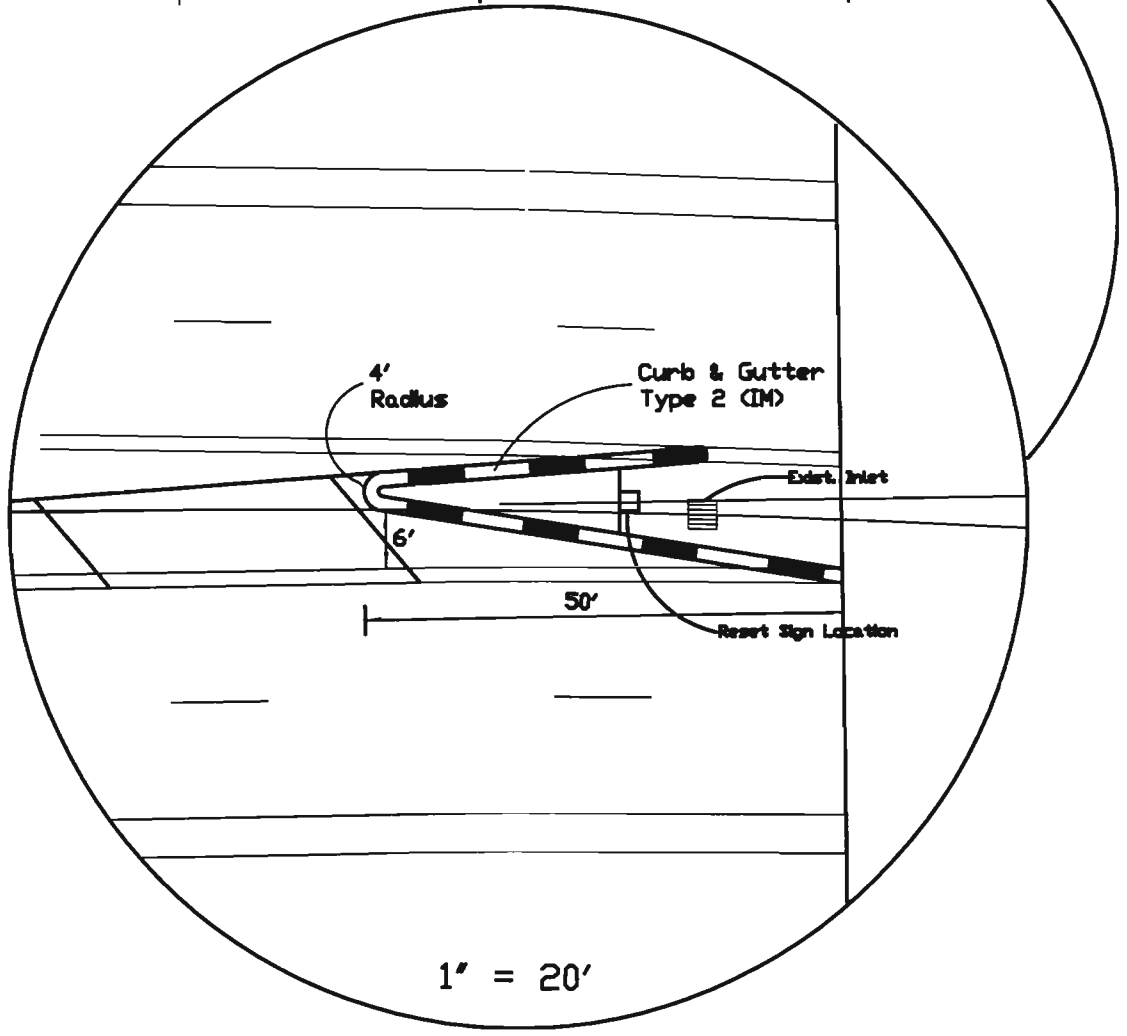
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Creation Date: June 02	Initials: CVC	(R-1)		 9858 W. Girton Drive Lakewood, Colorado 80227 Phone: 303-988-5474 FAX: 303-980-9860 Region 1	No Revisions: 11/06/2002		Designer: CVC		NH 2854-092		
Last Modification Date:	Initials:	(R-2)			Revised:		Detailer: CVC		14071		
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Drawing File Name: 14071bankstabilizationdetail.dwg		(R-4)			RRH				Sheet Number		10
Acad Ver.: Scale: nts Units:		(R-5)									



LEGEND
REMOVAL OF ASPHALT MAT

1" = 50'

PAY ITEM	UNIT	ROADWAY	
		PLAN	AS CONST.
202-00203 REMOVAL OF CURB & GUTTER	LIN. FT.	842	842
202-00220 REMOVAL OF ASPHALT MAT	S.Y.	600	561
203-00080 UNCLASSIFIED EXCAVATION (CIP)	C.Y.	△ 200	200
403-00720 HBP (PATCHING)	TON	● 220	218.72
609-21011 CURB & GUTTER TYPE 2 (I-M)	LIN. FT.	87	108
612-00001 DELINEATOR (TYPE I)	EACH	4	0
612-00003 DELINEATOR (TYPE III)	EACH	1	1



1" = 20'

● 6" Thickness (2-3" lifts)
△ For information only. Quantity carried to Summary of Earthwork Quantities.

Computer File Information		Index of Revisions		Colorado Department of Transportation 9658 W. Girton Drive Lakewood, CO 80227-4328 Phone: 303-968-5474 FAX: 303-7980-8880 Region I RRH		As Constructed		SITE 2 PLAN AT WOODSIDE		Project No./Code	
Creation Date: 4/1/02	Initials: DS					No Revisions:					
Last Modification Date: 6/27/02	Initials: krm			Revised: 11/06/2002				14071			
Full Path: 1313/13384/Pre.../Plans/Rich/woodside				Void:				Sheet Number 11			
Drawing File Name: 13384Woodside.dwg											
Acad Ver. 2002 Scale: 1" = 50' Units: ENGLISH											

SURFACING TABULATION


LOCATION	SIDE	HBP GR S < 75 < PG 64-28		HBP < PATCHING < ASPHALT	
		TON		TON	
		Plan	As Const.	Plan	As Const.
STA 117+00 - STA 128+00	Lt.	850	350.90	10	0
Approaches	Lt.	20			
TOTAL		870	350.90	10	0

MISC. TABULATION

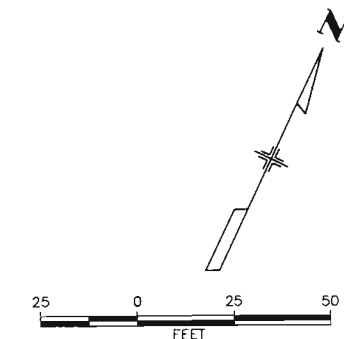
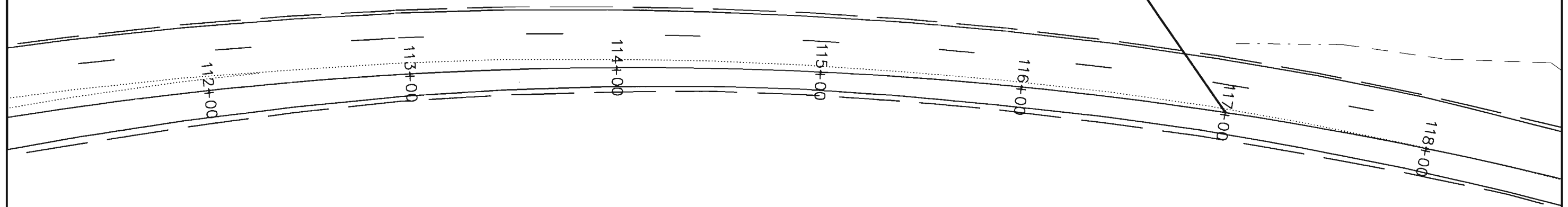
LOCATION (STATION)	RESET MAILBOX STRUCTURE		● INLET TYPE C (5 Foot)		18" CSP		24" CSP		48" CSP		REMOVAL OF PIPE		DELINEATOR (TYPE I)		DELINEATOR (TYPE III)	
	EACH		EACH		LIN. FT.		LIN. FT.		LIN. FT.		LIN. FT.		LIN. FT.		LIN. FT.	
	PLAN	AS CON.	PLAN	AS CON.	PLAN	AS CON.	PLAN	AS CON.	PLAN	AS CON.	PLAN	AS CON.	PLAN	AS CON.	PLAN	AS CON.
119+00 Lt.	1	1														
120+34.6 Lt.									20	20					1	0
121+40 Lt.							15	10							1	0
123+10 Lt.			1	1												3
123+38 Lt. <input checked="" type="checkbox"/>					56	49		5			44	44				3
123+66 Lt.			1	1									3	2		
PROJECT TOTALS	1	1	2	2	56	49	15	15	20	20	44	44	3	2	2	6

● INLETS SHALL BE COMPLETELY INSTALLED WITHIN ONE WORKING DAY, AND REQUIRE A PEDESTRIAN SAFE GRATE.

PIPE SHALL BE REMOVED AND INSTALLED IN ONE WORKING DAY AND SHALL NOT IMPEDE TRAFFIC FLOW.

Computer File Information				Index of Revisions				Colorado Department of Transportation				As Constructed				SITE 3				Project No./Code									
Creation Date: 11/27/01		Initials: DS						 9858 W. Girton Drive Lakewood, CO 80227-4326 Phone: 303-988-5474 FAX: 303-7980-9860 Region I RRH				No Revisions: Revised: 11/06/2002 Void:				SURFACING AND MISC. TABULATION				Designer:		Structure Numbers		NH 2854-092					
Last Modification Date: 6/27/02		Initials: krm																		Revised: 11/06/2002		Detailer:				14071			
Full Path: 1313/13384/Pre.../Plans/Rich/Tabs																				Void:				Sheet Subset:		Subset Sheets: of		Sheet Number 12	
Drawing File Name: 13384TABS.DWG																													
Acad Ver. 2002 Scale: NONE Units: ENGLISH																													

Begin Site 3 NH 2854-092
Sta 117+00 (MP 233.70)

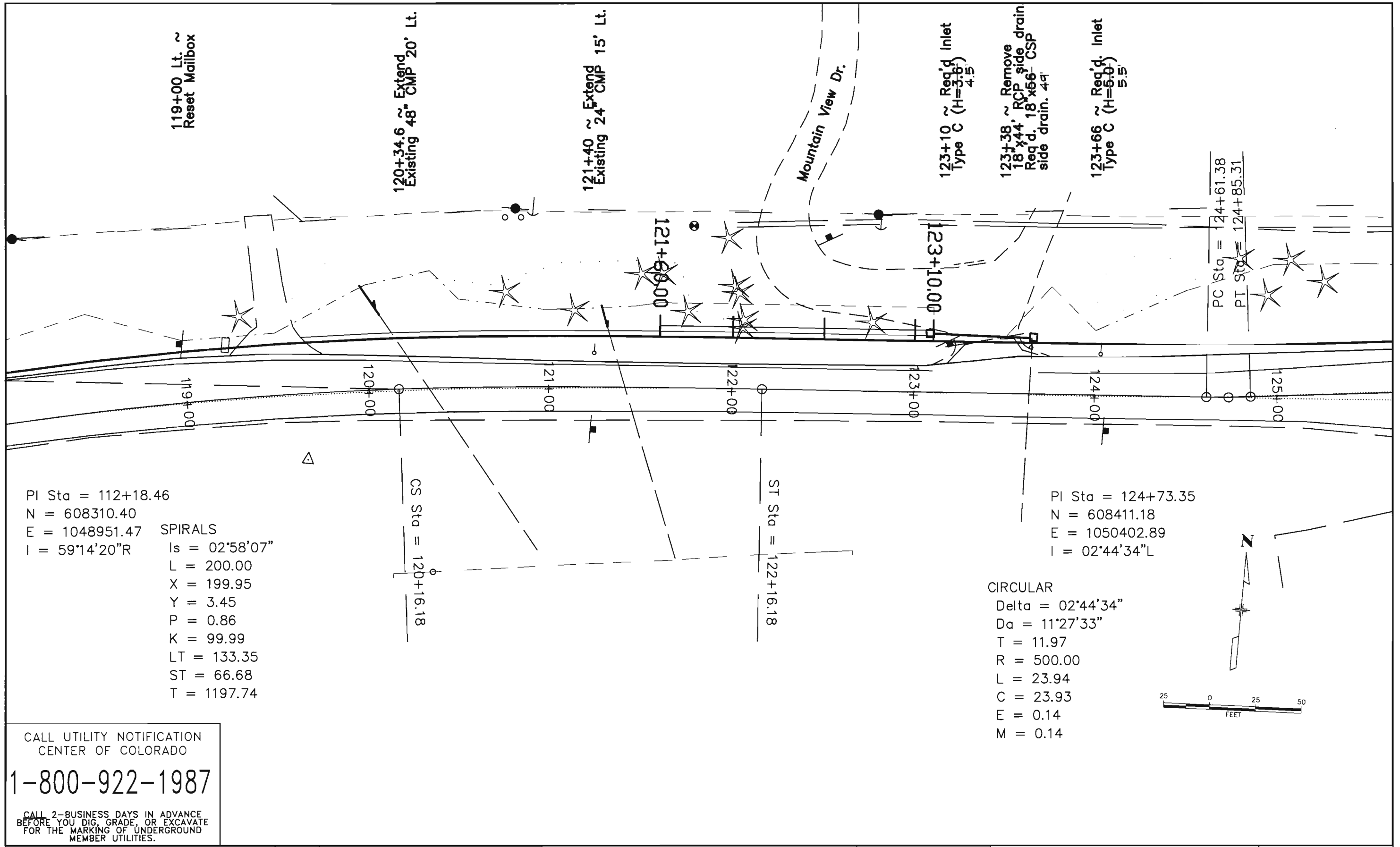


CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		Site 3 Richmond Hill Plan		Project No./Code	
Creation Date:	05/03/2002	Initials:	krm					No Revisions:	11/06/2002	NH 2854-092	
Last Modification Date:	06/25/2002	Initials:	krm					Revised:		14071	
Full Path:	\\RC\13384-Richmond-RC\							Void:		Sheet Number 13	
Drawing File Name:	RCP01001.dwg										
Acad Ver.	2002	Scale:	xx:xxxx	Units:	FEET	Resident Engineer RRH					



Region 1 Design
9858 W. Girton Dr.
Lakewood, Colorado 80227
Phone: 303-988-5474 FAX: 303-980-9860




PI Sta = 112+18.46
 N = 608310.40
 E = 1048951.47
 I = 59°14'20"R

SPIRALS
 Is = 02°58'07"
 L = 200.00
 X = 199.95
 Y = 3.45
 P = 0.86
 K = 99.99
 LT = 133.35
 ST = 66.68
 T = 1197.74

PI Sta = 124+73.35
 N = 608411.18
 E = 1050402.89
 I = 02°44'34"L

CIRCULAR
 Delta = 02°44'34"
 Da = 11°27'33"
 T = 11.97
 R = 500.00
 L = 23.94
 C = 23.93
 E = 0.14
 M = 0.14

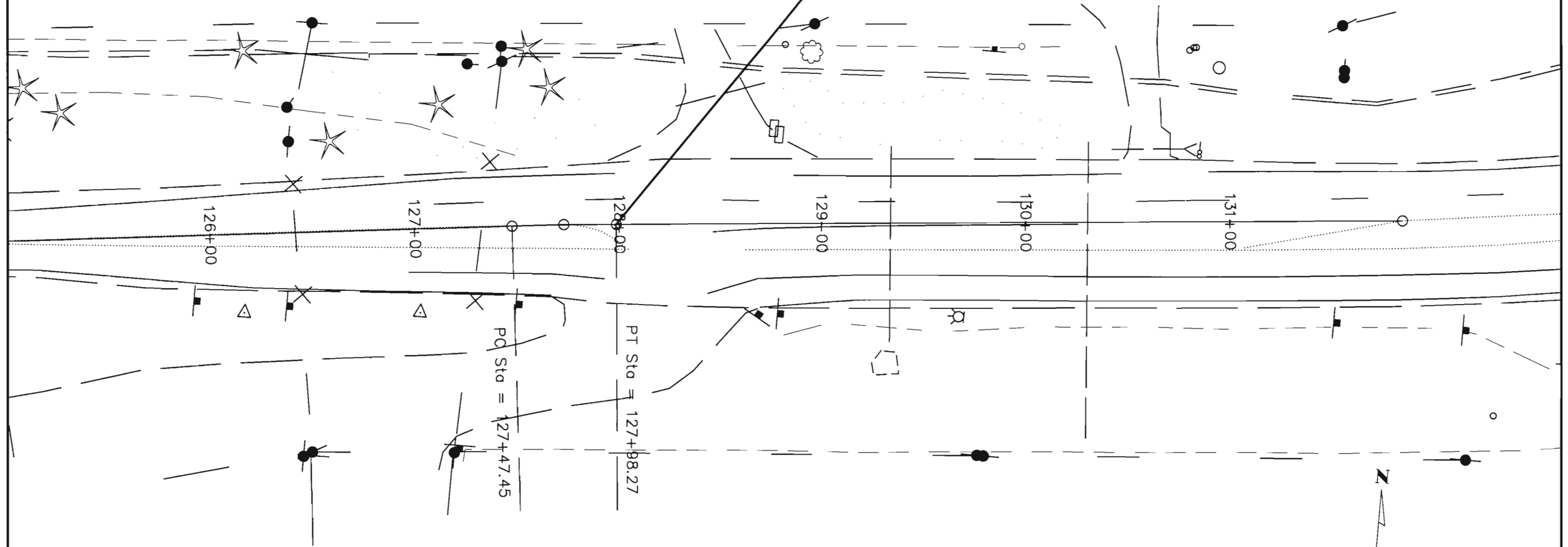
CALL UTILITY NOTIFICATION
 CENTER OF COLORADO
1-800-922-1987
 CALL 2-BUSINESS DAYS IN ADVANCE
 BEFORE YOU DIG, GRADE, OR EXCAVATE
 FOR THE MARKING OF UNDERGROUND
 MEMBER UTILITIES.

Computer File Information Creation Date: 05/03/2002 Initials: krm Last Modification Date: 06/26/2002 Initials: krm Full Path: \\RC\13384-Richmond-RC\ Drawing File Name: RCP02001.dwg Acad Ver. 2002 Scale: xx:xxxx Units: FEET		Sheet Revisions <table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>										Colorado Department of Transportation  Region 1 Design 9858 W. Girton Dr. Lakewood, Colorado 80227 Phone: 303-988-5474 FAX: 303-980-9860 Resident Engineer RRH		As Constructed No Revisions: Revised: 11/06/2002 Void:		Site 3 Richmond Hill Plan		Project No./Code NH 2854-092 14071 Sheet Number 14	

PI Sta = 127+72.86
 N = 608446.20
 E = 1050700.35
 I = 01°31'29"R
 CIRCULAR
 Delta = 01°31'29"
 Da = 02°59'59"
 T = 25.41
 R = 1910.00
 L = 50.82
 C = 50.82
 E = 0.17
 M = 0.17

End Site 3 NH 2854-092
Sta 128+00 (MP 233.91)

EOP = 128+00.00
 E = 1050727.38
 N = 608448.65



50
CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
 CALL 2-BUSINESS DAYS IN ADVANCE
 BEFORE YOU DIG, GRADE, OR EXCAVATE
 FOR THE MARKING OF UNDERGROUND
 MEMBER UTILITIES.

Computer File Information	
Creation Date:	05/03/2002 Initials: krm
Last Modification Date:	06/25/2002 Initials: krm
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Drawing File Name:	RCP03001.dwg
Acad Ver.	2002 Scale: xx:xxxx Units: FEET

Sheet Revisions	

Colorado Department of Transportation
 Region 1 Design
 9858 W. Girton Dr.
 Lakewood, Colorado 80227
 Phone: 303-988-5474 FAX: 303-980-9860
 Resident Engineer RRH

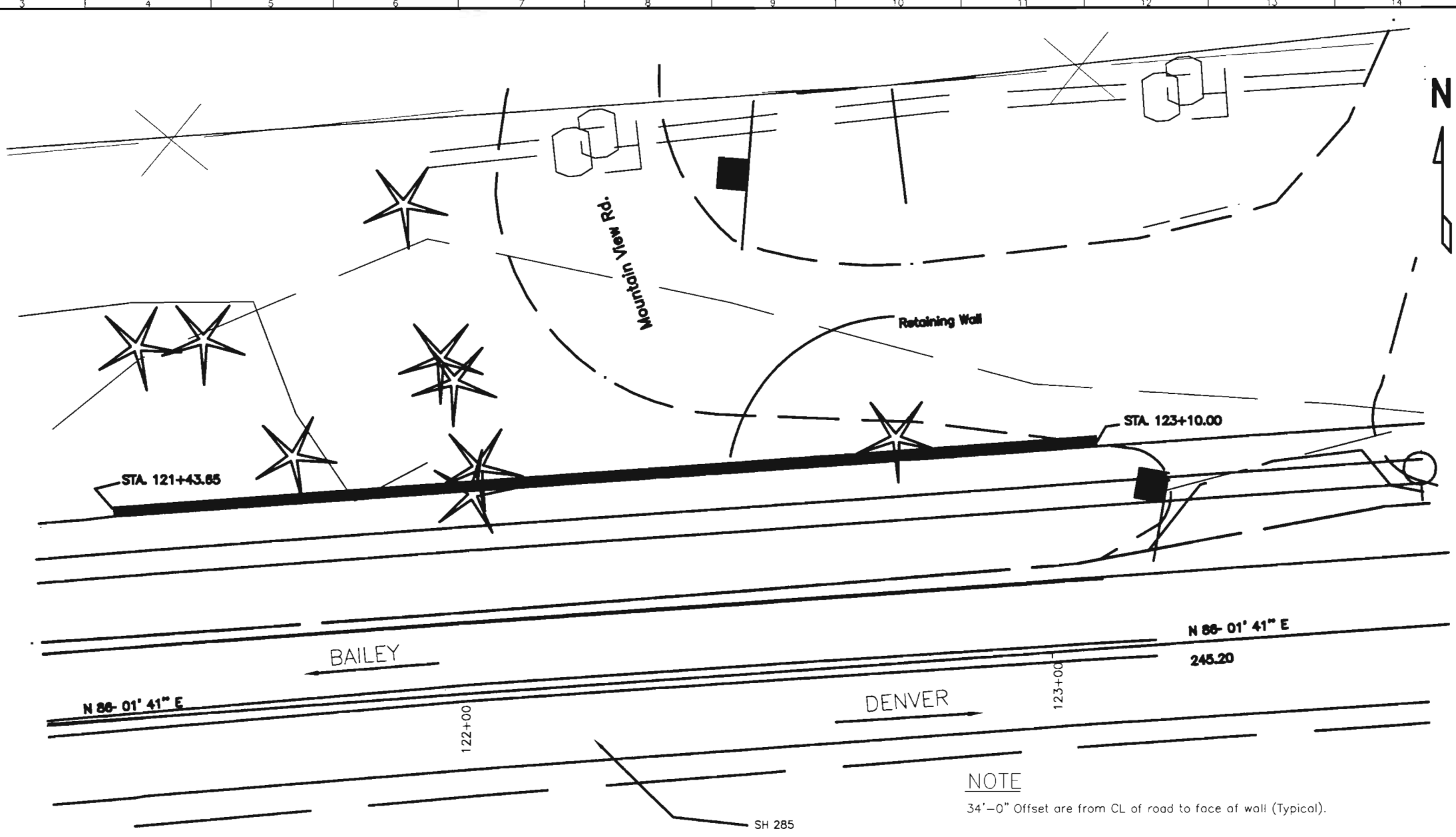
As Constructed
 No Revisions: 11/06/2002
 Revised:
 Void:

Site 3
Richmond Hill Plan

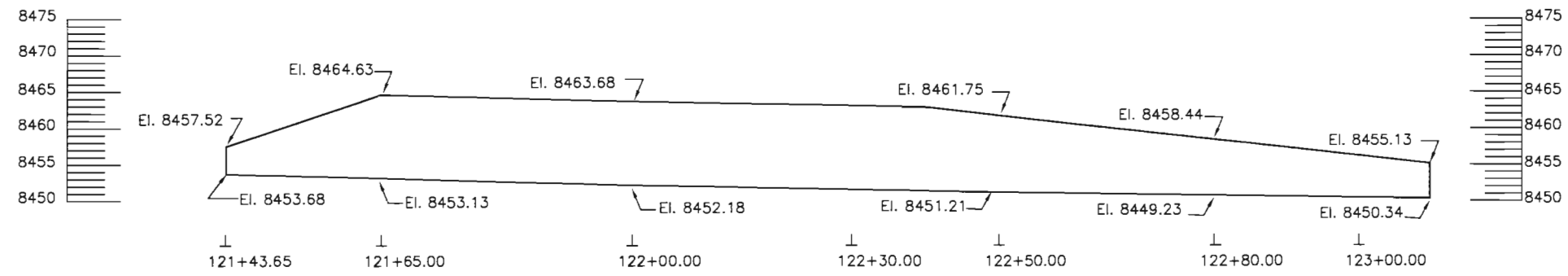
Project No./Code
NH 2854-092
14071
 Sheet Number 15

Revision Dates		Quantities	
	(Preliminary Stage Only)		

Design		Detail		Quantities	



PLAN



ELEVATION

NOTE
34'-0" Offset are from CL of road to face of wall (Typical).

PROJECT WALL DESCRIPTION

Roadway separation wall
166.35' long and max. height of 11.5'
CIP w/ traffic barrier type 7
Located near town of Conifer

Computer File Information			
Creation Date:	3/02	Initials:	GMT
Last Modification Date:	3/02	Initials:	GMT
Full Path:	F:\221\WALL\POINT\		
Drawing File Name:	13384-B1.DWG		
Acad Ver.:	R2002	Scale:	Units: English

Sheet Revisions	

Colorado Department of Transportation



4201 East Arkansas Avenue, Room 330
Denver, Colorado 80222-3400
Phone: 303-757-9352 FAX: 303-757-9197

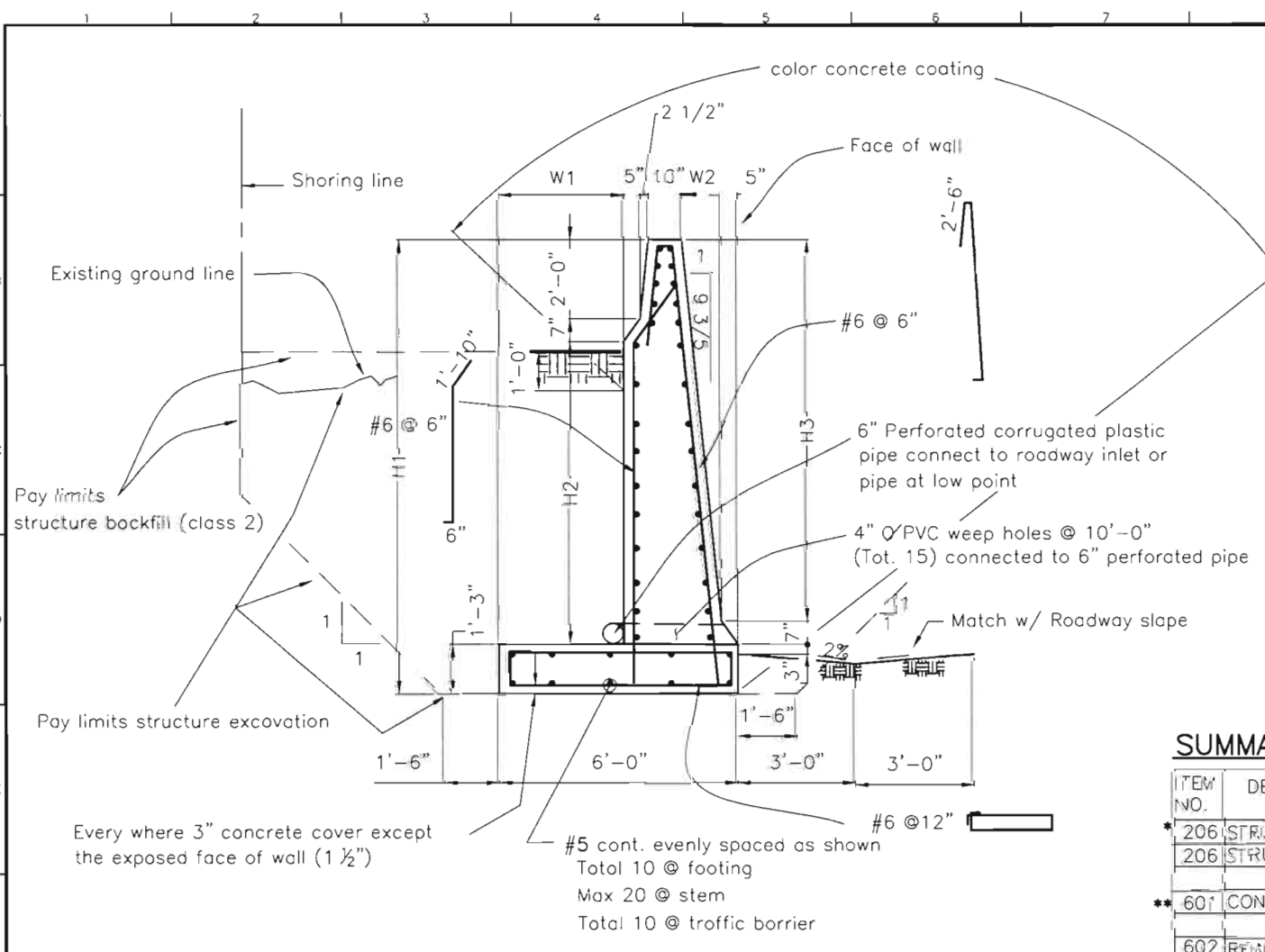
Staff Bridge Branch

As Constructed	
No Revisions:	11/06/2002
Revised:	
Void:	

PLAN AND ELEVATION			
Designer:	GMT	Structure Numbers:	WALL-G-15-A
Detailer:	GMT	Sheet Subset:	Bridge
		Subset Sheets:	B of 2

Project No./Code	
	13384
	2834--088
Sheet Number	16

Quantities		Detail		Design	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
GMT	3/02	GMT	3/02	GMT	3/02
STW	STW	STW	STW	STW	STW
Checked By	Checked By	Checked By	Checked By	Checked By	Checked By



WALL HEIGHT

Station	H1 (ft)	H2 (ft)	H3 (ft)	W1 (ft)	W2 (ft)
1121+60.00	3.83	1.25	2.00	3.92	0.21
1121+81.28	11.50	7.67	9.67	3.11	1.01
1121+90.00	11.50	7.67	9.67	3.11	1.01
1122+00.00	11.50	7.67	9.67	3.11	1.01
1122+10.00	11.50	7.67	9.67	3.11	1.01
1122+20.00	11.50	7.67	9.67	3.11	1.01
1122+30.00	11.50	7.67	9.67	3.11	1.01
1122+40.00	11.50	7.67	9.67	3.11	1.01
1122+50.00	10.50	6.67	9.67	3.11	1.01
1122+60.00	9.58	5.75	7.75	3.32	0.80
1122+70.00	8.62	4.79	6.79	3.42	0.71
1122+80.00	7.66	3.83	5.83	3.52	0.60
1122+90.00	6.71	2.88	4.88	3.61	0.51
1123+00.00	5.74	1.91	3.91	3.72	0.41
1123+10.00	4.79	0.96	2.96	3.81	0.31

DESIGN DATA

AASHTO, SECOND EDITION LRFD 2001 INTERIM
 TL-4 FOR RAILING
 VERTICAL EARTH LOAD: 125 pcf
 HORIZONTAL LOAD (EQUIV. FLUID DENSITY): 50 pcf (SERVICE LOAD)
 SOIL BEARING CAPACITY: 2000 psf (SERVICE LOAD)

REINFORCED CONCRETE:

CLASS D CONCRETE: f'c = 4,500 psi
 REINFORCING STEEL: fy = 60,000 psi

NOTES:

THE CONTRACTOR SHALL MAINTAIN THE STABILITY OF THE ROADWAY BEHIND THE WALL AT ALL TIMES DURING CONSTRUCTION. TEMPORARY SHORING SHALL BE REQUIRED IN THE CONSTRUCTION OF THE WALL. THE DECISION TO USE ADDITIONAL BRACING SHALL BE ENTIRELY THE CONTRACTOR'S RESPONSIBILITY. THE COST OF THE REQUIRED SHORING OR ADDITIONAL BRACING SHALL BE INCLUDED IN THE COST OF THE STRUCTURE EXCAVATION. ALL WORK MUST BE WITHIN THE RIGHT OF WAY.

WHEN THE HEIGHT OF SHORING EXCEEDS FIVE FEET ABOVE THE BASE OF THE EXCAVATION, SHORING DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER FOR INFORMATION ONLY. THE DRAWINGS SHALL BE PREPARED BY, AND CONTAIN THE SEAL AND SIGNATURE OF, A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF COLORADO. THESE DRAWINGS SHALL BE APPROVED AND SIGNED BY THE CONTRACTOR AND PROVIDED TO THE ENGINEER AT LEAST TEN DAYS PRIOR TO CONSTRUCTION.

EMBANKMENT, CONSTRUCTION, TRAFFIC, AND OTHER SURCHARGES ARE ADJACENT TO THE SHORING SITE. THE CONTRACTOR SHALL PROVIDE A SIGNED LETTER FROM THE CONTRACTOR'S PROFESSIONAL ENGINEER STATING THAT THE SHORING WILL SUPPORT THE REQUIRED LOADS.

1/2" DEEP V-SHAPED VERTICAL GROVES (FRONT & BACK) NEED TO BE INSTALLED WITH 20'-0" MAX. SPACING AS DIRECTED BY ENGINEER.

THE MINIMUM LAP SPLICE LENGTH FOR EPOXY COATED #5 BARS SHALL BE 1'-6".

THE COST OF THE PLASTIC DRAINS, WEEP, HOLE, AND PIPE, SHALL BE INCLUDED IN ITEM 601-CONCRETE CLASS D. PERFORATED DRAIN PIPES SHALL BE WRAPPED IN A LAYER OF GEOTEXTILE (DRAINAGE) (CLASS B).

A COLORED STRUCTURAL CONCRETE COATING FINISH WILL BE REQUIRED ON EXPOSED SURFACES. THE COLOR SHALL BE 31657 (TAN), EQUIVALENT TO FEDERAL STANDARD 595B COLOR NO. 30450, AND IS TO BE SELECTED FROM TEST PANELS PROVIDED BY THE CONTRACTOR. THE COST OF STRUCTURAL CONCRETE COATING SHALL BE INCLUDED IN ITEM 601-CONCRETE CLASS D.

PORTION OF EXCAVATION MAY INCLUDE ROCK EXCAVATION. STRUCTURAL BACK FILL (CLASS 2) WITH PI (PLASTIC INDEX) HAS TO BE LESS THAN 12 AND MAX. PASSING OF -200 WITHIN 20%.

THE PLAN IS PREPARED AND BASED ON A LATEST SURVEY, CONTRACTOR SHALL VERIFY ALL NECESSARY DIMENSIONS BEFORE ORDERING MATERIALS.

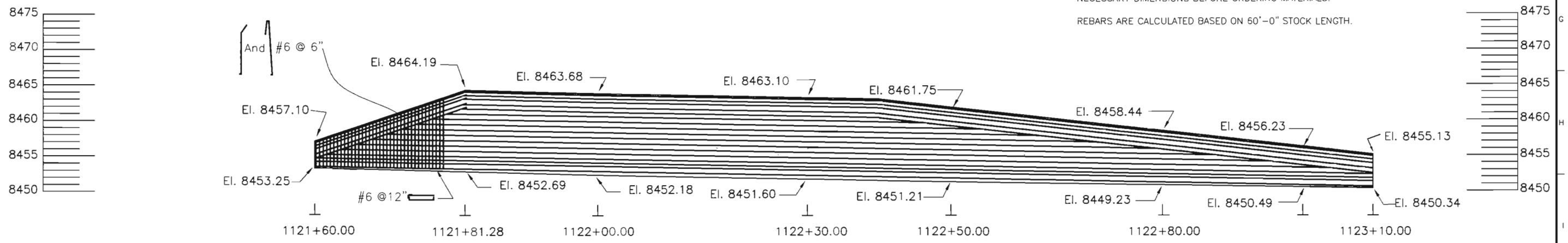
REBARS ARE CALCULATED BASED ON 60'-0" STOCK LENGTH.

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	TOTAL
* 206	STRUCTURE EXCAVATION	CU. YD.	525.0
206	STRUCTURE BACKFILL (CLASS 2)	CU. YD.	310.0
** 601	CONCRETE CLASS D	CU. YD.	108.0
602	REINFORCING STEEL (EPOXY COATED)	LB.	17730.0

* QUANTITIES ARE AVERAGED FROM STA. 1121+60.00 TO STA. 1123+10.00
 ** 601-STRUCTURAL CONCRETE COATING (1960 sq.ft) FOR INFO ONLY.

WALL SECTION (HEIGHT VARIES)



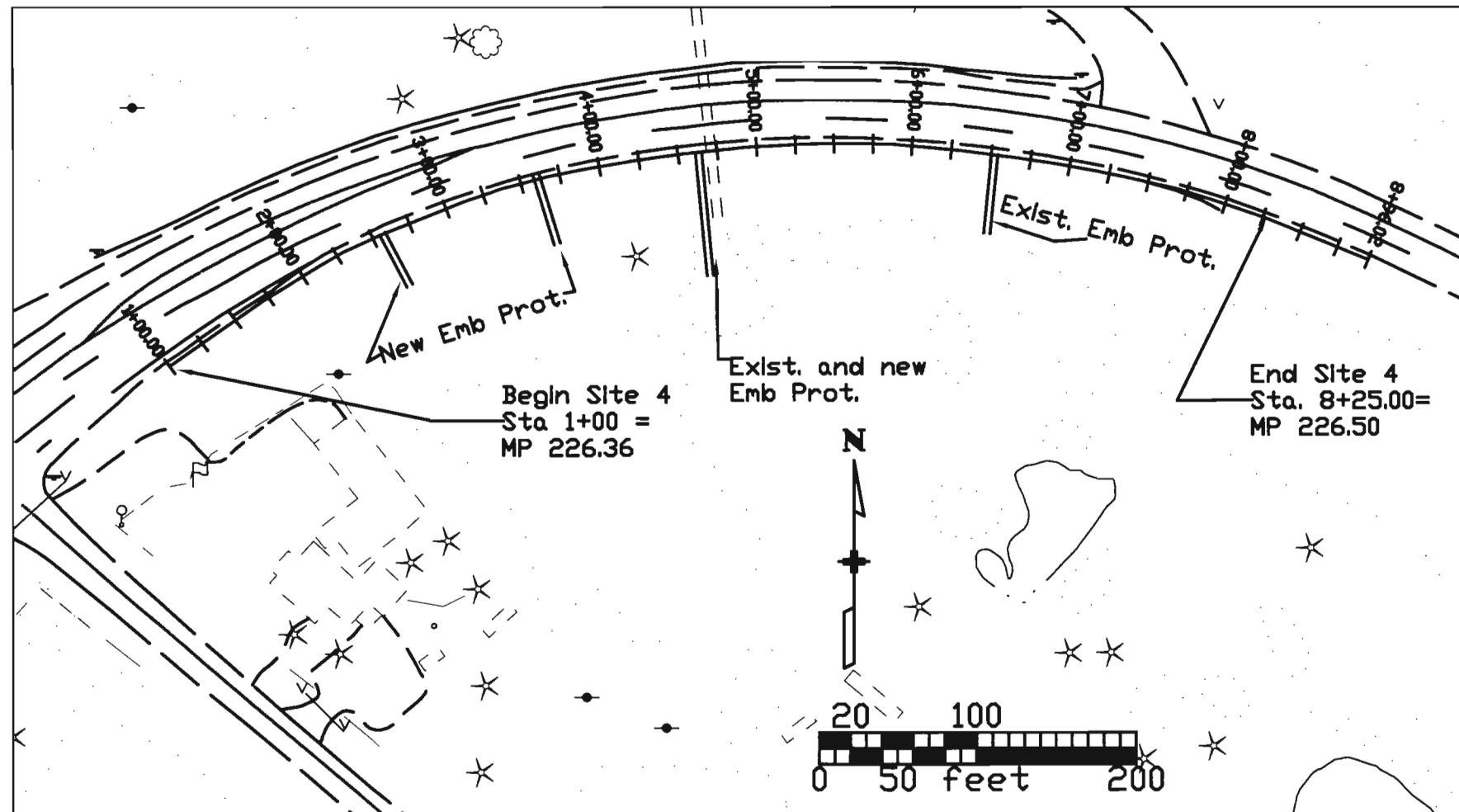
ELEVATION

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		CROSS SECTION AND QUANTITIES		Project No./Code				
Creation Date:	3/02	Initials:	GMT				No Revisions:	11/06/2002	Designer:	GMT	Structure Numbers:	WALL-G-15-A	Project No./Code:	NH 2854-092
Last Modification Date:	7/2/02	Initials:	krm				Revised:		Detailer:	GMT	Sheet Subset:	Bridge	Sheet Number:	14071
File Path:	bridgecom\0221\wall-g15a						Void:		Sheet Subset:	Bridge	Subset Sheets:	B &	Sheet Number:	17
Drawing File Name:	cross-section&quantities-2.dwg													
Acad Ver.:	R2002	Scale:												



4201 East Arkansas Avenue, Room 330
 Denver, Colorado 80222-3400
 Phone: 303-757-9352 FAX: 303-757-9197

Staff Bridge Branch



Tabulation of Guardrail Items

LOCATION Station	Removal of End Anchorage Each		© Adjust Guardrail Lin Ft		End Anchor (SRT) Each	
	Plan	As Const.	Plan	As Const.	Plan	As Const.
1+00 to 7+00 ft	2	2	100	580	2	2
2+00 to 7+93 ft	2	2	518	38	2	2
TOTAL	4	4	618	618	4	4

© Includes installation of omitted post and removal of wood curb and wood curb spacers right. Includes replacement of damaged sections left as directed by the Engineer.

NOTE 1: 2 Cu. Yds Embankment left Sta. 4+50 and 400 Cu. Yds Embankment right Sta. 4+00 to 6+00 + carried to Summary of Earthwork Quantities.

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

NOTE: Alignment established along the front face of guardrail, and starts 100 ft before existing end anchor starts.

Tabulation of Embankment Protector Items

LOCATION Station	Ø Removal of Structure Each		Removal of Curb Lin Ft		12 inch Cuvert Pipe CU YD		Riprap (12 In) CU YD		Curb Type 6 (Section M) Lin Ft		Bitum S Pave (T)
	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan
2+58 ± rt			20	13	42	19	1.3	1.3	24	17	9
3+61 ± rt	1		20	12	52	34	1.3	1.9	24	17	9
4+79 ± rt #		1	36	23	83	59	1.3	1.8	40	17	16
6+50 ± rt							1.3				
TOTAL	1	1	76	48	177	112	5.2	5.0	88	51	34

Ø about 50 Lin Ft of 18" CMP, end section, etc.
Flair bituminous curb and S & D each side of the embankment protector

Computer File Information	
Creation Date:	06/17/2002 Initials: krm
Last Modification Date:	07/02/2002 Initials: krm
Full Path:	Unit 1313\13384... \Pre... \Plans... \Working...
Drawing File Name:	13384Roland Valleyldr.dwg
Acad Ver.	2002 Scale: xx:xxx Units: FEET

Sheet Revisions	

Colorado Department of Transportation
Region 1 Design
9858 W. Girton Dr.
Lakewood, Colorado 80227
Phone: 303-988-5474 FAX: 303-980-9860
Resident Engineer RRH

As Constructed
No Revisions:
Revised: 11/06/2002
Void:

Tabulation Sheet
Roland Valley - Site 4

Project No./Code
NH 2854-092
14071
Sheet Number 18

SUMMARY OF EARTHWORK QUANTITIES

INDEX	BOOK	PAGE	SHEET	PROJECT TOTALS	
				PLAN	AS CONST.
				CU YD	CU YD
				<u>Unclassified Excavation (CIP)</u>	
				200	
				2370	2570
				2570	
				FOR INFORMATION ONLY	
				CU YD	CU YD
				<u>Embankment Material</u>	
				50	
				612	
				402	
				1064	
				<u>Compaction (AASHTO T-180)</u>	
				1064	
				<u>Base of Cuts & Fills</u>	
				100	
				642	
				278	
				2084	
				<u>Roadway Quantities Balance</u>	
				1170	
				1170	
				<u>Unclassified Excavation</u>	
				2570	
				1400	
				1170	

φ INCLUDES REMOVAL OF ASPHALT, ALL MATERIAL TO BECOME THE PROPERTY OF THE CONTRACTOR

● EXCESS EXCAVATION SHALL BE HAULED AND STOCKPILED BY THE CONTRACTOR TO THE CDDT BAILEY MAINTENANCE YARD AT M. P. 223.14. THE CONTRACTOR SHALL NOTIFY RICK LEWIS 303-838-4440, ONE WEEK PRIOR TO HAULING EXCESS EXCAVATION. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF UNCLASSIFIED EXCAVATION (CIP).

Computer File Information		Index of Revisions		Colorado Department of Transportation		As Constructed		SUMMARY OF EARTHWORK QUANTITIES		Project No./Code	
Creation Date:	6/18/02	Initials:	DS	<input type="checkbox"/>				NH 2854-092			
Lost Modification Date:	6/26/02	Initials:	krm	<input type="checkbox"/>				14071			
Full Path:	1313/13384/Pre./Plans/Rich/Tabs			<input type="checkbox"/>				14071			
Drawing File Name:	13384Earthwork.dwg			<input type="checkbox"/>				14071			
Acad Ver.	2002	Scale:	NONE	Units:	ENGLISH	<input type="checkbox"/>		14071			
				Region I		RRH		Revised: 11/06/2002		Sheet Number 19	

STORMWATER MANAGEMENT PLAN – ADDITIONAL INFORMATION

Estimated Runoff coefficient
 Pre-construction: 0.43 Post-construction: 0.48

Existing data describing soil or quality of discharge: _____

Existing vegetation: Native upland grasses

Proposed sequence for major activities, location of any other potential pollution source, areas used for storage of building materials, soils or wastes, and location of any dedicated asphalt or concrete batch plants: see water quality and erosion control specifications, and documents submitted by the contractor at the preconstruction conference.

Site map and construction site boundaries: see title sheet

Areas of cuts and fills and areas of soil disturbance: see plan and profile sheets and roadway cross sections.

Surface waters: see title sheet and bridge hydraulic information sheet (if existent)

Materials handling and spill prevention: see water quality specification (107.25).

Inspection and maintenance: see erosion control specifications (107.25 or 208).

100-year Flood plain boundaries: see bridge hydraulic information sheet (if existent).

Description of the construction activity, estimate of the total site area and of the area expected to undergo excavation, and name of the receiving water: see CDPS stormwater permit application.

Contract Document location of erosion control and stormwater quality management measures not referenced above nor included on the Stormwater Management Plan Sheet(s): _____

NOTES

- Due to low precipitation rates, hydromulching will not be allowed.
- Washing out concrete trucks shall be limited to specific sites pre-approved by the Engineer.
- Do not apply fertilizer in areas adjacent to wetlands and waterways.
- Disturbed surfaces shall be left in a roughened condition at all times.
- Placement of seed, mulch, mulch tackifier and blanket will not be done in a single operation, but shall be completed after each construction phase. It is estimated that 4 or more mobilizations shall be required and shall be included in the price of the work.
- It is estimated that 300 LF of silt fence will be required at Site 4 at the toe of slope.
- It is estimated that 200 LF of fence (plastic) will be required for Sites 3 and 4 to protect existing trees and shrubs. Prior to construction commencing trees to be protected shall be flagged by the Engineer and CDOT Landscape Architect.

EROSION BALE – INLET PROTECTION (SITE 3)	
STATION	NO. BALES
120+34	9 culvert inlet
121+40	9 culvert inlet
123+66	12 Type C
As directed by the Engineer	20
TOTAL	50

NATIVE SEEDING

Soil preparation*, fertilizer*, seeding, mulching and mulch tackifier will be required for an estimated 1.2 acres of disturbed area within the right-of-way limits which are not surfaced. The following types and rates shall be used:

COMMON NAME	BOTANICAL NAME	LBS PLS/ACRE
Western wheatgrass	Pascopyrum smithii "Rosanna"	6.0
Sheep fescue	Festuca ovina "Covar"	2.0
Blue grama	Bouteloua gracilis "Hachita"	1.0
Prairie junegrass	Koeleria cristata	0.5
Sandberg bluegrass	Poa sandbergii	1.0
Slender wheatgrass	Elymus trachycaulus ssp. trachycaulus "Pryor"	5.0
Arizona fescue	Festuca arizonica	2.0
Fringed sage	Artemisia frigida	0.1
Blackeyed Susan	Rudbeckia hirta	0.2
Blue flax	Linum lewisii	0.5
Rocky Mtn. penstemon	Penstemon strictus	0.5
Golden banner	Thermopsis divaricarpa	1.0
Oats	Avena sativa	3.0
TOTAL		22.8

SEEDING APPLICATION: Drill seed .25" to .5" into the topsoil where possible. In areas not accessible to a drill hand broadcast at double the above rate and rake .25" to .5" into the topsoil. Site 3 and 4, hydroseeding will be required on steep slopes. Hydroseed at double the above rate.


MULCHING APPLICATION: 1.5 tons of certified weed free hay per acre mechanically crimped into the topsoil in combination with an organic mulch tackifier. On slopes 2:1 and steeper, areas of hydroseeding, and at bank stabilization locations, blanket shall be placed in lieu of mulch and mulch tackifier.

It is estimated that 1670 SY of blanket will be required at Site 4.
 It is estimated that 1936 SY of blanket will be required at Site 3.

*FOR INFORMATION ONLY		
FERTILIZER	ANALYSIS %	LBS/ACRE AVAILABLE
NITROGEN	18	27
PHOSPHORUS	46	69
POTASSIUM	0	

PROJECT TOTALS: See bank stabilization sheets for additional erosion control items.

PAY ITEM	DESCRIPTION	UNIT	QUANTITY
208	EROSION BALES	EACH	50
208	SILT FENCE	LF	300
208	EROSION CONTROL SUPERVISOR	LS	1
212	SEEDING (NATIVE)	ACRE	1.2
213	MULCHING (WEED FREE HAY)	ACRE	0.4
213	MULCH TACKIFIER	LB	60
216	SOIL RETENTION BLANKET (STRAW/COCONUT)	SY	3606
607	FENCE (PLASTIC)	LF	200
700	EROSION CONTROL	FA	1

Computer File Information		Index of Revisions		Colorado Department of Transportation		As Constructed		Stormwater Management Plan		Project No./Code	
Creation Date:	June 02 Initials: CVC	<input type="checkbox"/>		 9858 W. Girton Dr. Lakewood Colorado 80227 Phone: 303-988-5474 FAX: 303-980-9860 Region 1 RRH	No Revisions: 11/06/2002		Designer: CVC		NH 2854-092		
Last Modification Date:	07/01/2002 Initials: krm	<input type="checkbox"/>			Revised:		Detailer: CVC		14071		
Full Path:	Region 1	<input type="checkbox"/>			Void:		Sheet Subst:		Sheet Number 20		
Drawing File Name:	14071sd.dwg	<input type="checkbox"/>					Subset Sheets: of				
Acad Ver:	2000 Scale: Units: English	<input type="checkbox"/>									

TABULATION OF TRAFFIC ENGINEERING ITEMS
(SOME ITEMS APPEAR IN OTHER TRAFFIC ENGINEERING TABULATIONS)

ITEM NO.	ITEM	UNIT	PROJECT TOTALS
202	REMOVAL OF PAVEMENT MARKING	SQ. FT.	490
202	REMOVAL OF GROUND SIGN	EACH	1
210	RESET GROUND SIGN	EACH	4
614	SIGN PANEL (CL I)	SQ. FT.	3.0
614	SIGN PANEL (CL II)	SQ. FT.	12.0
614	STEEL SIGN POST (2 IN. ROUND)	LIN. FT.	19.0
614	STEEL SIGN POST (2.5 IN. ROUND) (SLIPBASE SCH. 80)	LIN. FT.	12.0
627	PVMT MKG PAINT (LOW VOC SOLVENT BASE)	GAL.	5
627	EPOXY PAVEMENT MARKING	GAL.	40
630	FLAGGING	HR	**
630	TRAF CONTROL MANAGEMENT	DAY	**
630	TRAFFIC CONTROL INSPECTION	DAY	**
630	CONST TRAF SIGN (A)	EACH	4
630	CONST TRAF SIGN (B)	EACH	41
630	CONST TRAF SIGN (C)	EACH	20
630	FLASH ARROW PANEL (C TY)	EACH	3
630	DRUM CHANNELIZING DEVICE	EACH	40
630	PORTABLE MESSAGE SIGN PANEL	DAY	**
630	TRAFFIC CONE	EACH	200
630	CONCRETE BARRIER (TEMP)	LIN. FT.	100

SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES

SIGNS					
SIGN CODE	LEGEND	DIMENSIONS	PANEL SIZE		
			A	B	C
48W20-1	ROAD/WORK/(DIST)	48' x 48'		14	
48W20-5()	(R/L) LANE/CLOSED/(DIST)	48' x 48'		4	
48W4-2()	(R/L) LANE TRANSITION SYMBOL	48' x 48'		4	
48W20-7a	FLAGGER SYMBOL	48' x 48'		6	
48W21-5	SHOULDER/WORK	48' x 48'		2	
48R2-1()	SPEED/LIMIT/_	48' x 60'			4
48R4-1	DO/NOT/PASS	48' x 60'			4
48R4-2	PASS/WITH/CARE	48' x 60'			4
48R1-1	STOP SIGN	48' OCTAGON		1	
48W22-1	BLASTING/ZONE/AHEAD	48' x 48'		2	
48W22-2a	TURN OFF/2-WAY RADIO/AND/PHONE	48' x 36		2	
42W22-3	END/BLASTING/ZONE	42' x 36		2	
48R52-4	BEGIN/FINES/DOUBLED/ FOR/SPEEDING	48' x 60'			4
48W20-64	FINES/DOUBLED	48' x 24'	4		
48R52-5	END/FINES/DOUBLED/ FOR/SPEEDING	48' x 60'			4
48G20-10	XYZ COMPANY THANKS YOU TEL. NO.	48' x 48'			4
SIGN TOTALS			4	41	20

OTHER DEVICES	
ITEM	QUANTITY
Ⓞ FLASH ARROW PANEL (C TY)	3 EACH
DRUM CHANNELIZING DEVICE	40 EACH
PORTABLE MESSAGE SIGN PANEL	** DAY
TRAFFIC CONE 36'	200 EACH
CONCRETE BARRIER (TEMP)	100 LIN. FT.

NOTES:

**PLEASE SEE "SUMMARY OF APPROXIMATE QUANTITIES".

Ⓞ SHALL BE SOLAR POWERED OR AS DIRECTED BY THE ENGINEER.

1. ALL SIGNS SHALL BE POST MOUNTED AND PLACED IN ACCORDANCE WITH THE STANDARD "TYPICAL GROUND SIGN PLACEMENT" UNLESS OTHERWISE APPROVED BY THE ENGINEER.

2. BASED ON SIGHT DISTANCE AND OTHER CONSIDERATIONS, THE FINAL LOCATION OF SIGNS IS SUBJECT TO THE APPROVAL OF THE ENGINEER.

3. IT IS ESTIMATED THAT 40 GALLONS OF EPOXY PAVEMENT MARKING WILL BE REQUIRED FOR FINAL STRIPING.

WHITE == 17 GAL.

YELLOW == 23 GAL.

5. EPOXY AND PAVEMENT MARKING PAINT TO BE USED AT SITES 2, 3, AND M.P. 227.

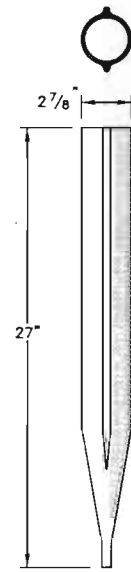
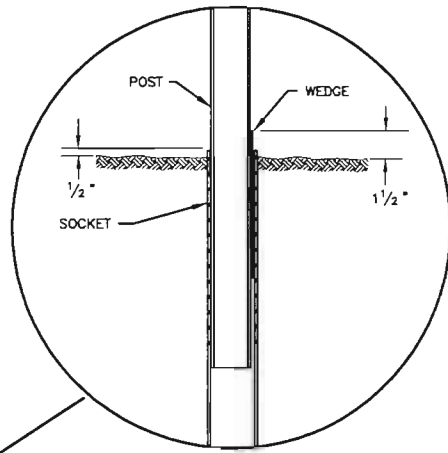
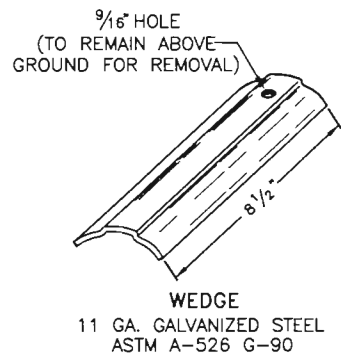
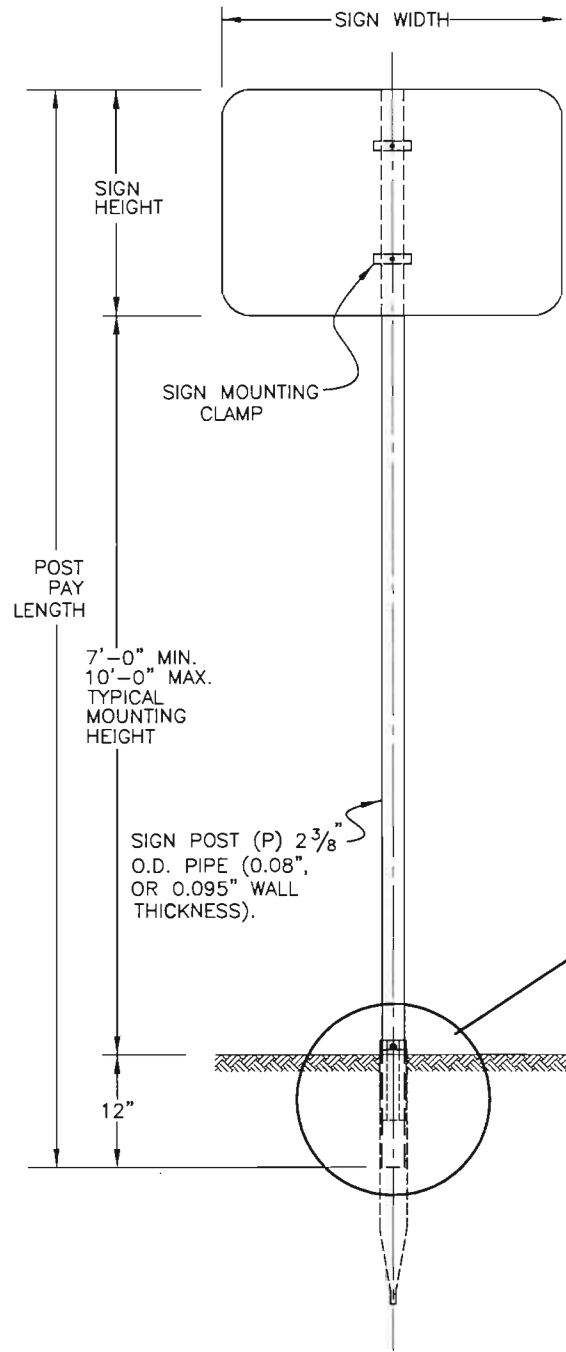
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Last Modification Date:	06/17/02	Initials:	LSM					Revised:		Designer:	Structure Numbers	14071
Full Path:	C:\PROJECTS\SH285\13384\							Void:		Detailer:	Subset Sheet Number:	Sheet Number
Drawing File Name:	SCHED-TAB.dwg									Sheet Subset: TRAFFIC		21
Acad Ver.2000 Original Scale	N/A	Units	ENGLISH									



Street Address
18500 E. Colfax
Aurora Colorado 80011
Phone: 303-757-9122 FAX: 303-343-0596

Region 1-Traffic J.P.B.

TUBULAR STEEL POSTS (SOCKET SYSTEM) (SINGLE OR DOUBLE POST)



POST NOTES:
THE POST MAY BE PRE-PUNCHED WITH 3/8" HOLES AND THE SIGN MOUNTED DIRECTLY TO THE POST, OR AN APPROVED MOUNTING CLAMP MAY BE USED TO MOUNT THE SIGN TO THE POST. IF THE POST IS PRE-PUNCHED, THE HOLES SHALL BE SPACED THE FOLLOWING DISTANCES FROM THE TOP:
1", 3", 10", 16", 21", 23", 24", 27", 33", 37", 39", AND 45"

SIGNPOST SELECTION GUIDE

SIGN HEIGHT (FT)	SIGN WIDTH (FT) / MOUNTING HEIGHT (FT)																																															
	1				2				2.5				3				4				5				6				7				8				9											
	7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10								
1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	***																							
2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				
2.5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				
3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				
4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				
5	***								P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				
6	***								P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				
7	***								P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				

GENERAL NOTES:

- SIGN POSTS SHALL BE COLD FORMED STEEL WITH A MINIMUM YIELD STRENGTH OF 55 KSI. POST COLOR SHALL BE FEDERAL STANDARD 595 NUMBER 20059 BROWN, OR EQUIVALENT OR AS SHOWN IN THE TABULATION OF SIGNS.
- STEEL TUBE SIGN SUPPORTS SHALL BE INSTALLED UNDER THE SUPERVISION OF AN ON-SITE INDIVIDUAL TRAINED BY THE MANUFACTURER OF THE SUPPORTS. PRIOR TO INSTALLATION OF THE SIGN SUPPORTS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER WRITTEN CERTIFICATION FROM THE MANUFACTURER THAT THE INDIVIDUAL SUPERVISING THE INSTALLATION HAS BEEN TRAINED TO PROPERLY INSTALL THE SUPPORTS. UPON COMPLETION OF SIGN SUPPORT INSTALLATION, THE CONTRACTOR SHALL SUBMIT WRITTEN CERTIFICATION, SIGNED BY THE TRAINED INSTALLER, THAT THE SUPPORTS WERE INSTALLED ACCORDING TO THE MANUFACTURER'S REQUIREMENTS.
- SIGNS AND POSTS SHALL INCLUDE ALL HARDWARE NECESSARY FOR COMPLETE INSTALLATION. POST TYPE P SHALL BE PAID FOR AS 614 STEEL SIGN POST (2 INCH ROUND), LIN. FT.
- SIGNS BETWEEN 37" AND 60" WIDTH WITH ONE POST INSTALLATION REQUIRE T SIGN SUPPORT BRACKET IN ADDITION TO THE BACKING ZEE REQUIREMENTS.
- MULTIPLE SIGNS MAY USE THE U SIGN SUPPORT BRACKET.

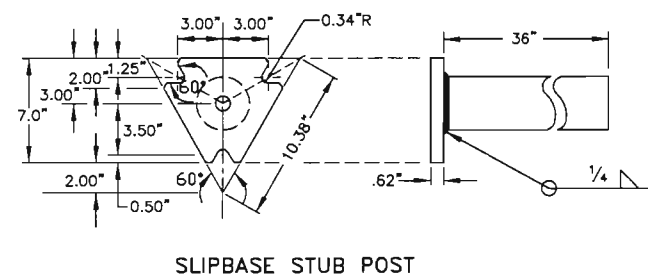
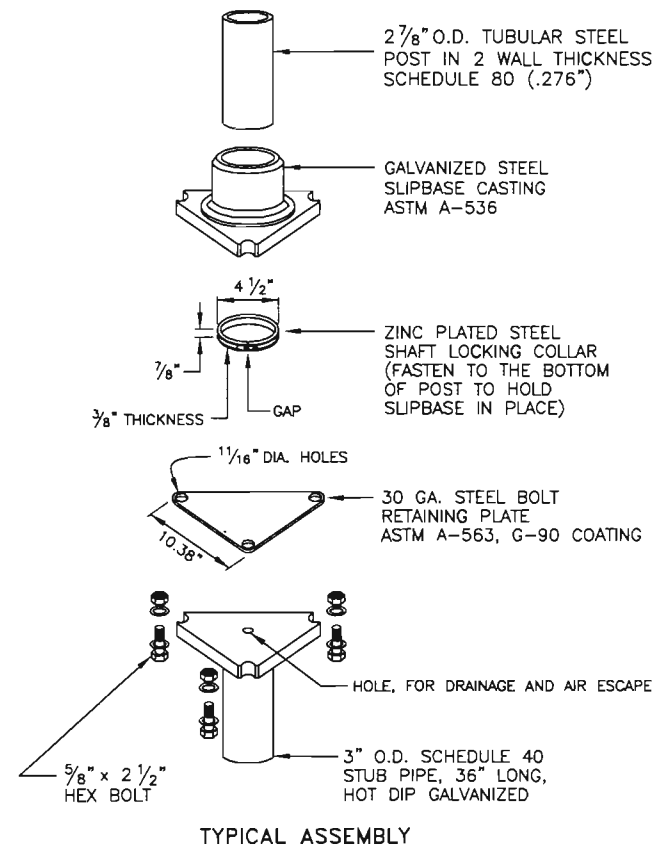
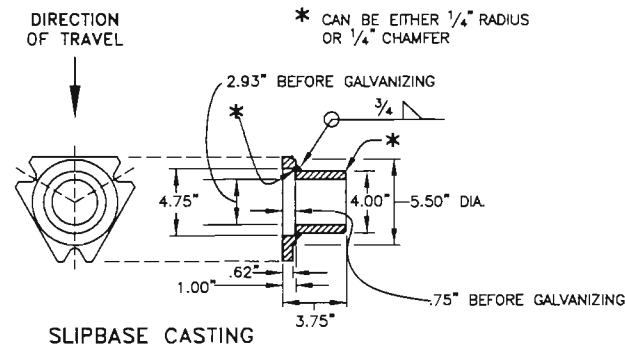
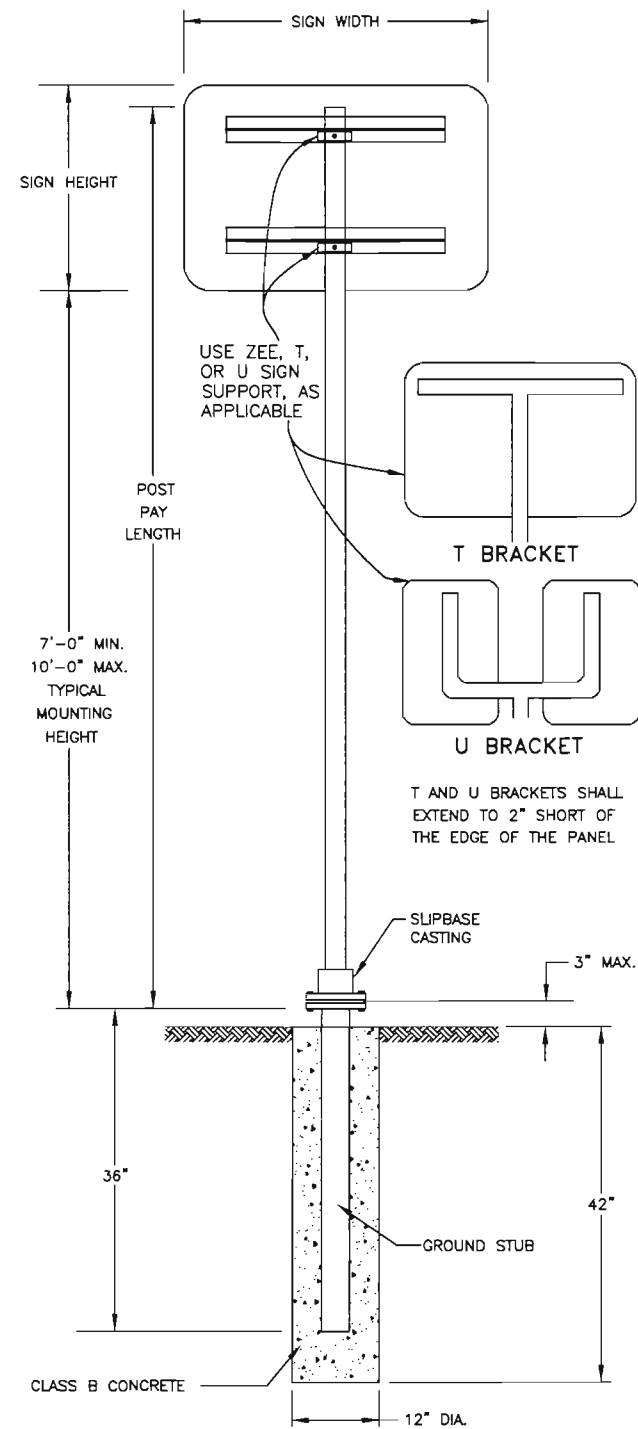
*** SIZES NOT USED. REFER TO COLORADO STANDARD PLANS SECTION 614 FOR LARGER SIGN SUPPORTS.
MAXIMUM ALLOWABLE MOMENT PER POST:
P (2", 2.375" OD) 1.46 KIP FT
P2 (2 1/2", 2.875" OD, SCHEDULE 80) 4.68 KIP FT

6. FOR BACKING ZEE REQUIREMENTS AND DETAILS, SEE COLORADO STANDARD PLANS S-614-3 AND S-614-4.

CHART NOTES:

- WIND LOAD DESIGN = 80 MPH.
- TYPICAL POST MOUNTING HEIGHTS FROM GROUND TO BOTTOM OF SIGN PANEL ARE 7, 8, 9, 10 FEET.
- FOR SIGNS MOUNTED ON TWO POSTS, MINIMUM DISTANCE BETWEEN POSTS SHALL BE 2 FEET AND MAXIMUM DISTANCE SHALL BE 8 FEET. MAXIMUM DISTANCE FROM POST TO EDGE OF SIGN PANEL(S) SHALL BE 0 TO 4 INCHES. WHEN BACKING ZEES ARE USED, POSTS SHALL BE INSTALLED WITH A MINIMUM OF 2" FROM EDGE OF THE BACKING ZEE.

TUBULAR STEEL POSTS (WITH SLIPBASE) (SINGLE OR DOUBLE POST)

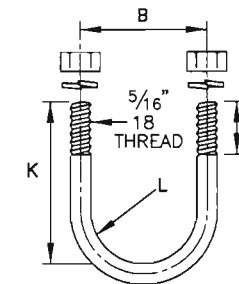


STANDARD PIPE SIZE	A	B	C	D	E	F	G	K	L	R ₁	R ₂
2	3 3/4	2 3/4	1 1/2	1 1/8	1/2	3/16	1	2 11/16	1 7/32	1 1/4	1 3/16
2 1/2	4 1/4	3 1/4	2	1 1/4	1/2	1/4	1	3 3/16	1 5/32	1 1/2	1 7/16

DIMENSIONS FOR MOUNTING CLAMP

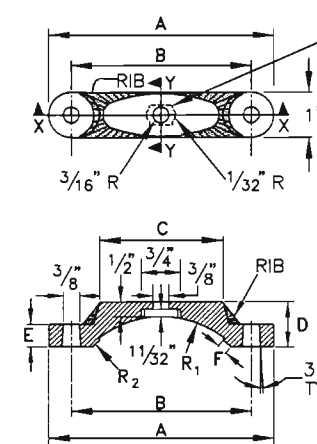
PIPE CLAMP CASTING

PIPE CLAMP CASTING SHALL BE ASTM B26 OR B108 ALUMINUM ALLOY A444.0-T4 OR 356.0-F. ALL SIGN MOUNTING CLAMP PARTS NOT MADE FROM ALUMINUM SHALL BE GALVANIZED STEEL IN CONFORMANCE WITH ASTM A153 OR STAINLESS STEEL.



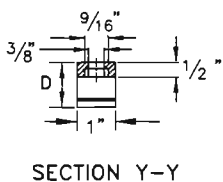
U-BOLT TO BE MADE IN ACCORDANCE WITH STANDARD MANUFACTURING PROCEDURE. 9/32" OR 5/16" DIAMETER STOCK IS PERMISSIBLE. AMERICAN STANDARD REGULAR SEMI-FINISHED HEX NUTS AND SPRING LOCKWASHERS.

U-BOLT



SLOT TO HOLD HEAD OF 3/8" HEX HEAD BOLT. THE BOLT SHALL BE 1 1/4" LONG, WITH FULL THREADS, A MEDIUM WASHER, AND GALVANIZED STEEL OR ALUMINUM SELF-LOCKING HEX HEAD NUT. THE BOLT HEAD MUST NOT TURN IN THE SLOT.

SECTION X-X



SECTION Y-Y

MOUNTING CLAMP FOR SOCKET OR SLIPBASE

GENERAL NOTES:

- SIGNS AND POSTS SHALL INCLUDE THE FOOTING, SLIPBASE, AND ALL HARDWARE NECESSARY FOR COMPLETE INSTALLATION. POST TYPE P2, INCLUDING T AND U MOUNTINGS, SHALL BE PAID FOR AS 614 STEEL SIGN POST (2.5 INCH ROUND) (SLIPBASE SCH. 80), LIN. FT.
- ALSO SEE NOTES 1, 2, 4, 5, 6, AND CHART NOTES ON PAGE 1.

Colorado Department of Transportation



4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9436 FAX: (303) 757-9219

Safety & Traffic Engineering Branch KA

Computer File Information

Path: www.dot.state.co.us/DevelopProjects/DesignSupport/SSstandard/

Drawing File Name: STLPST2-1-02.dwg

Acad Version: R2002 Scale: NA Units: English

Standard Plan Revised

Date: 01/25/02
Comments: Deleted P1 Post Type

GROUND MOUNTED SIGN SUPPORT DETAIL

Issued By: Traffic Engineering Unit January 1, 2000

NH 2854-092

14071

Sheet No.

24

TO ESTABLISH GEOMETRIC CONTROL FOR THE CONSTRUCTION OF THIS PROJECT, THE DEPARTMENT HAS PROVIDED THE FOLLOWING INFORMATION:

- Horizontal Control
- Vertical Control
- Roadway Alignment
- Original Terrain Data
- Other: _____

Format*
 Match Existing / Plans
 Match Existing / Plans

*Specify the information format, ie., plan sheet, computer disk, computer printout, or other.
 The information marked is either contained on the plans or is available from the Engineer.

TYPE OF PROJECT

- Landscaping
- Signalization
- Safety Improvement
- Asphalt Overlay
- Concrete Overlay
- Minor Widening
- Major Reconstruction
- New Roadway Construction
- Bridge Replacement
- Bridge Widening
- New Bridge
- Other: _____

SURVEY WORK TO BE PERFORMED BY OTHERS: _____

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER ITEM 625:

- Establish and Maintain Project Centerline or Engineer Approved Offset Line(s)
- Verification and Maintenance of Horizontal and Vertical Control
- Verify or Determine existing grades and alignments
- Verify or Determine existing topography
- Clearing and Grubbing Limits
- Removal Limits
- Reset Items
- Excavation and Embankment
 - Excavation
 - Unclassified
 - Stripping
 - Muck
 - Rock
 - Borrow
 - Other: _____
 - Embankment
 - Site Grading
 - Erosion Control (Perm)
 - Other: _____
- As Staked Earthwork Quantities
- Landscaping
 - Top Soil
 - Seeding
 - Mulching
 - Planting
 - Other: Wattle
- Erosion Control
 - Seeding (Temp)
 - Silt Fences
 - Straw Bales
 - Temporary Berm
 - Riprap (Temp)
 - Other (Temp Diversion, Temp Slope Drain, Bush Barrier, Check Dam, Other): Sails Retention Blanket

	SLOPE STAKING	GRID	GRADE STAKES	SPECIAL INTERVAL
<input checked="" type="checkbox"/> Excavation	Yes	-	50'	-
<input type="checkbox"/> Embankment	-	-	-	-
<input type="checkbox"/> Site Grading	-	-	-	-
<input type="checkbox"/> Erosion Control (Perm)	-	-	-	-
<input type="checkbox"/> Other: _____	-	-	-	-

- Roadway Bases
 - Untreated Subgrade
 - Treated Subgrade
 - Aggregate Base Course
 - Other: _____
- Pavements
 - PMBB - Plant Mix Bituminous Base
 - HBP - Hot Bituminous Pavement
 - Concrete
 - Other: _____
- Roadway Elements
 - Curb and Gutter
 - Drop inlets - alignment and grades
 - Retaining Walls
 - Guard Rail
 - Sidewalk
 - Other: _____
- Riprap (Perm)
- Slope and Ditch Paving
- Minor Structures
 - Structure Excavation limits
 - Culverts
 - Culverts w/ Headwalls and Wingwalls
 - Concrete Box Culverts w/ Headwalls and Wingwalls
 - Pipes
 - Sanitary Sewer
 - Storm Sewer
 - Water
 - Irrigation
 - Miscellaneous
 - Manholes
 - Inlets
 - Other: _____
- Major Structures - Overhead Signs, Concrete Box Culverts, Bridges - and all other structures assigned a structure number
 - Structure Excavation limits
 - Concrete Box Culverts w/ Headwalls and Wingwalls
 - Piling locations and cut off elevations
 - Caisson locations and elevations
 - Footing locations, alignment, and elevations
 - Abutment/Pier locations, alignment, and elevations
 - Wingwall skew angles/offsets
 - Structural concrete form locations
 - Substructure survey (See Revision of Subsection 601.12)
 - Bridge expansion joint(s) alignment and grade (longitudinal and transverse)
 - Deck grades at Girder 10th or "n" th point locations and elevations
 - Slope and Ditch Paving
 - Other: _____
- Fencing
 - Temporary
 - Permanent
 - Sound Barriers
 - Other: _____
- Delineators
 - Temporary
 - Permanent
- Lighting and Traffic Control Devices (Perm)
 - Signal pole locations and elevations
 - Light pole locations and elevations
 - Signs
 - Field verify sign post locations, elevations, and lengths before fabrication.
 - Other: _____
- Pavement Marking
 - Striping (Temp)
 - Striping (Perm)
 - Symbols
 - Other: _____

	GRADE STAKES	GRID	SPECIAL INTERVAL	SPECIAL OFFSET
<input checked="" type="checkbox"/> Roadway Bases	-	-	-	-
<input checked="" type="checkbox"/> Pavements	Yes	-	50'	-
<input checked="" type="checkbox"/> Roadway Elements	-	-	-	-
<input checked="" type="checkbox"/> Riprap (Perm)	-	-	-	-
<input type="checkbox"/> Slope and Ditch Paving	-	-	-	-
<input checked="" type="checkbox"/> Minor Structures	-	-	-	-
<input type="checkbox"/> Major Structures	-	-	-	-

- Temporary Lighting and Construction Traffic Control Devices
 - Signal pole locations and elevations (Temp)
 - Light pole locations and elevations (Temp)
 - Signs (Temp)
 - Other: _____
 - Easement (Temp)(Staking)(PLS Only)
 - Right Of Way Line (Temp)(Staking)(PLS Only)
- WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER ITEM 629:**
- Monumentation
 - Control
 - Right of Way
 - Land corners, Aliquot corners
 - Easement (Perm)
 - Reference the specified existing monuments: ** _____
 - Relocate the specified existing monuments: ** _____
 - Locate monuments. It is estimated _____ hours are required.
- ** A Tabulation of Survey Monuments may be provided on the plans.

GENERAL NOTES:

All work shall be done in accordance with the latest edition of the entire CDOT Survey Manual including all revisions to date:
 - Chapter 5 - Construction Surveying, revised 02/07/96.

Adequate information for establishing lines, grades, and locations for all work items have been specified on the plans. Any additional information required to stake the item or element shall be generated by the Contractor's surveyor.

The Contractor's surveyor shall provide an estimate of the man-hours necessary to complete the work items indicated on this sheet. A copy of this sheet, with the estimated man-hours written on the blank line to the left of the specified items, shall be submitted with the Survey Schedule to the Engineer 3 days prior to the Presurvey Conference.

The following surveying notebooks are required:

- Alignment Notebook
- Benchmark Notebook
- Control Survey/Monumentation Notebook
- Minor Structure Notebook
- Major Structure Notebook
- Slope Staking Notebook
- Grade Notebook
- Other Notebook(s): Miscellaneous


Stakes and Monuments which are damaged or destroyed by the progress of construction shall be replaced by the Contractor at no additional cost to the Department.

The Contractor shall furnish an As Staked earthwork quantity to the Engineer prior to completion of twenty percent (20%) of the planned earthwork in any phase as per the CDOT Survey Manual.
 A printed copy of the As Staked earthwork data and a computer disk in the specified format shall be submitted to the Engineer.
 The Contractor shall field verify original ground cross sections at maximum 160 m (500 ft) intervals.

Prior to beginning work on any subsequent operation, such as placing base course or paving, the Contractor shall certify in writing to the Engineer that the final grade is within the specified tolerance.

The Contractor shall perform all field surveying and calculations necessary to tie plan grades into field grades.

The Contractor shall coordinate construction staking on the project with any utility work.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		Survey Tabulation		Project No./Code		
Creation Date:	Initials: JPC	<input type="checkbox"/>		 Region 1 Construction 18500 E. Colfax Avenue Aurora, Colorado 80011 Phone: 303-757-9744 FAX: 303-757-9746		No Revisions: 11/06/2002		US 285 Spot Locations		NH 2854-092		
Last Modification Date:	Initials: JPC	<input type="checkbox"/>				Revised:				14071		
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COLORADO DEPARTMENT OF TRANSPORTATION



Region 1
Address: 18500 East Colfax Avenue
Aurora, CO 80011
Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway

Sheet Revisions

mm/yy	xxxx	xxx

U.S. 285 MP 233.5 to MP 234.2

NE/4 Sec.27
& NW/4 Sec.27
& SW/2 Sec.27
T.6 S, R.71 W 6th P.M.
JEFFERSON COUNTY, COLORADO

Survey Control Diagram

Title Sheet

Project Number:	NH 2854-092
Project Location:	US 285 Spot Improvement
Project Location:	SEC.27, T.6S, R.71W, 6 P.M.
Project Code:	13384
Last Mod. Date:	00-00-00
Subnet Sheets:	1 of 2
Sheet No.:	26
Total No. of Sheets:	xxx

PROJECT COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA METERS)

POINT NAME	NAD 1983(1992)		Ellipsoid HEIGHT	ELEV(m)	ANGLE	SCALE	NAD 1983(1992),Central		DESCRIPTION
	LATITUDE(N)	LONGITUDE(W)					NORTHING(m)	EASTING(m)	
MP233.4	39°29'57.43368"N	105°20'00.27608"W	2591.04	2605.06	0°06'18.23961"	0.999554511	489749.731	928730.368	CDOT Type 2 Control Monument
MP233.7	39°30'04.25871"N	105°19'49.22274"W	2573.30	2587.37	0°06'25.21084"	0.999557516	489960.697	928994.060	CDOT Type 2 Control Monument
MP233.9	39°30'05.37453"N	105°19'36.52537"W	2561.30	2575.38	0°06'33.21894"	0.999559430	489995.680	929297.350	CDOT Type 2 Control Monument
MP234.0	39°30'07.26906"N	105°19'26.88136"W	2562.99	2577.09	0°06'39.30131"	0.999559230	490054.548	929527.643	CDOT Type 2 Control Monument
MP234.1	39°30'08.84445"N	105°19'20.28528"W	2560.93	2575.04	0°06'43.46139"	0.999559606	490103.438	929685.134	CDOT Type 2 Control Monument
MP234.3	39°30'11.18808"N	105°19'13.90034"W	2549.31	2563.43	0°06'47.48831"	0.999561503	490176.014	929837.533	CDOT Type 2 Control Monument

PROJECT COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA METERS)

POINT NAME	NAD 1983(at ground),Central		ELEV(m)	DESCRIPTION
	NORTHING(m)	EASTING(m)		
MP233.4	185185.122	319576.685	2605.06	CDOT Type 2 Control Monument
MP233.7	185396.189	319840.504	2587.37	CDOT Type 2 Control Monument
MP233.9	185431.190	320143.940	2575.38	CDOT Type 2 Control Monument
MP234.0	185490.086	320374.344	2577.09	CDOT Type 2 Control Monument
MP234.1	185539.000	320531.912	2575.04	CDOT Type 2 Control Monument
MP234.3	185611.610	320684.384	2563.43	CDOT Type 2 Control Monument

PROJECT COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA FEET)

POINT NAME	NAD 1983(at ground),Central		ELEV(ft)	DESCRIPTION
	NORTHING(ft)	EASTING(ft)		
MP233.4	607561.520	1048477.842	8546.77	CDOT Type 2 Control Monument
MP233.7	608253.998	1049343.388	8488.73	CDOT Type 2 Control Monument
MP233.9	608368.828	1050338.911	8449.39	CDOT Type 2 Control Monument
MP234.0	608562.057	1051094.828	8454.99	CDOT Type 2 Control Monument
MP234.1	608722.535	1051611.781	8448.27	CDOT Type 2 Control Monument
MP234.3	608960.757	1052112.015	8410.18	CDOT Type 2 Control Monument



Typical Control Monument Cap
Not to Scale

BASIS OF BEARINGS: Bearings used in the calculation of coordinates shown herein are based on a grid bearing of N 51°20'19" E from U.S. 285 CM-MP 233.4 to US 285 CM-MP 233.7 as obtained from a Global Positioning System (GPS) Survey, based on the Colorado High Accuracy Network (CHARN).

BASIS OF ELEVATIONS: All project elevations are based on NGS First Order Bench Mark M 14 (NGS PID: KK0737). The elevation of M 14 = 2,359.464(meters), 7741.01(feet) NAVD 88. There are no existing Bench Marks in the project area. All control points on this project were tied in by means of running a Bench Loop from M-14.

COORDINATE DATUM: Coordinates on this project are for the exclusive use of the CDOT for the construction of this project and are considered Project Coordinates only.

▲ CP - Control Point Monuments set by CDOT. They were CDOT type 2 monuments, a 3-1/4" dia. aluminum control monument cap (as shown) on a 3' X 3/4" dia. finned aluminum security rod on a 3' X 3/4" dia. smooth aluminum rod.

NOTE: This control survey is for the use of the Colorado Department of Transportation personnel. The survey is not a complete Boundary Survey. Title Policy, Title Commitment, and Title Research were not part of this control survey, therefore, easements, rights, and restrictions of record are not shown. The verification of the physical evidence with relation to easements, rights of way, property boundaries, and restriction, as described in the instruments of record, were not included in this control survey.

NOTE: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the statement shown.

NOTE: No guarantee as to the accuracy of the information contained on the attached drawing is either stated or implied unless this copy bears an original signature of the professional land surveyor hereon named.

SURVEYORS STATEMENT: I, Kenneth W. Carlson, a Professional Land Surveyor in the State of Colorado, hereby state that this Control Survey Diagram was prepared under my direct supervision this 7 day of November 2001, from a field survey performed under my supervision and checking for and on behalf of the Department of Transportation, State of Colorado, and is not a Land Survey Plat or Right-of-Way Survey Plat and to the best of my knowledge and belief this control survey, as shown, meets the minimum horizontal control tolerances of a Type B Survey and this topographic survey, as shown, meets the minimum horizontal control tolerances of a Type D Survey as listed in the Colorado Department of Transportation Survey Manual Chapter Three (Revised 4/29/92).

Kenneth W. Carlson PLS 24942 Date

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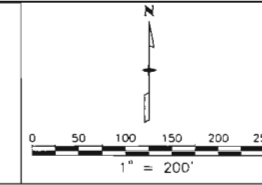
Region 1
 Address: 18500 East Colfax Avenue
 Aurora, CO 80011
 Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway

Sheet Revisions		
mm/yy	xxxx	xxx

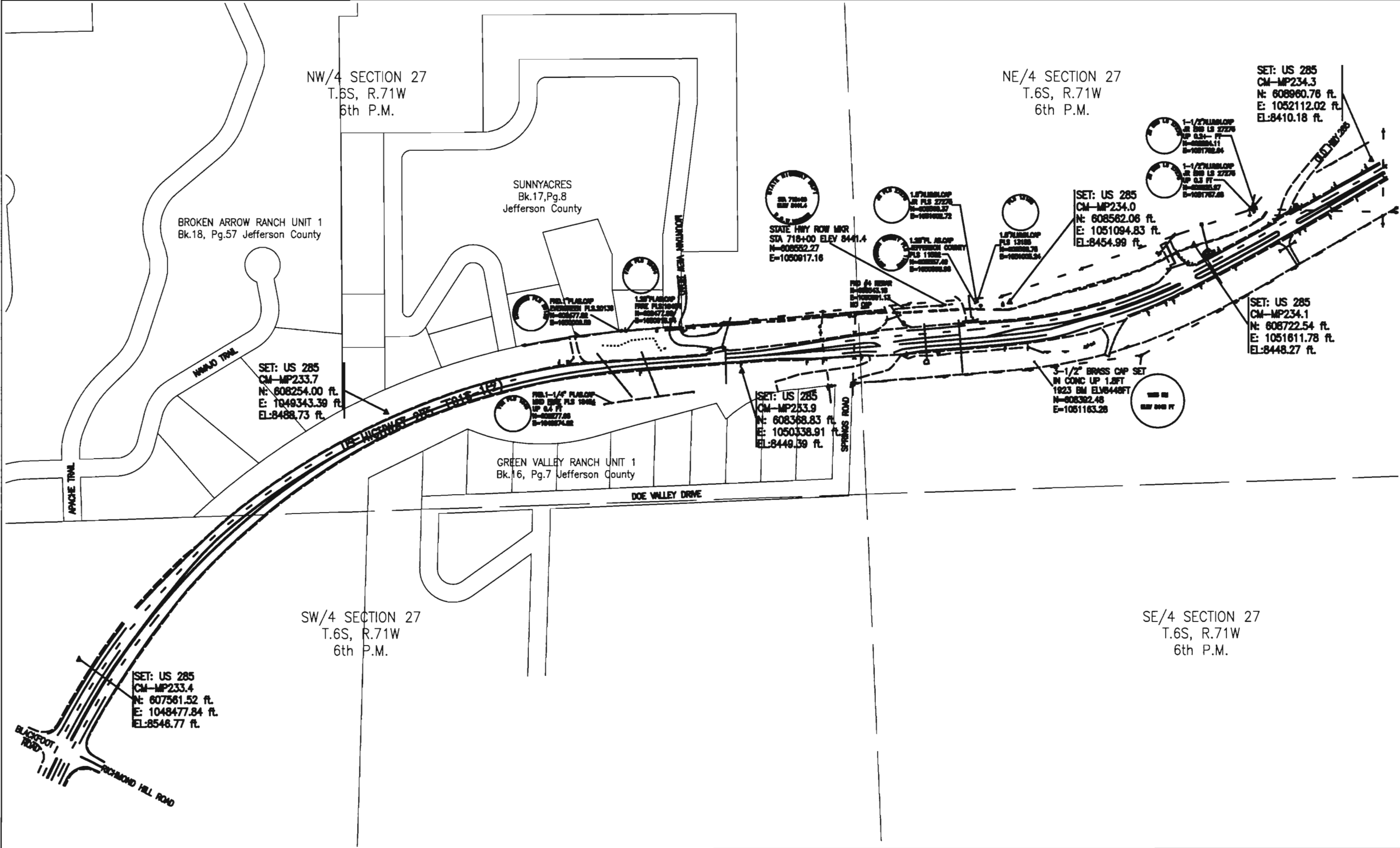
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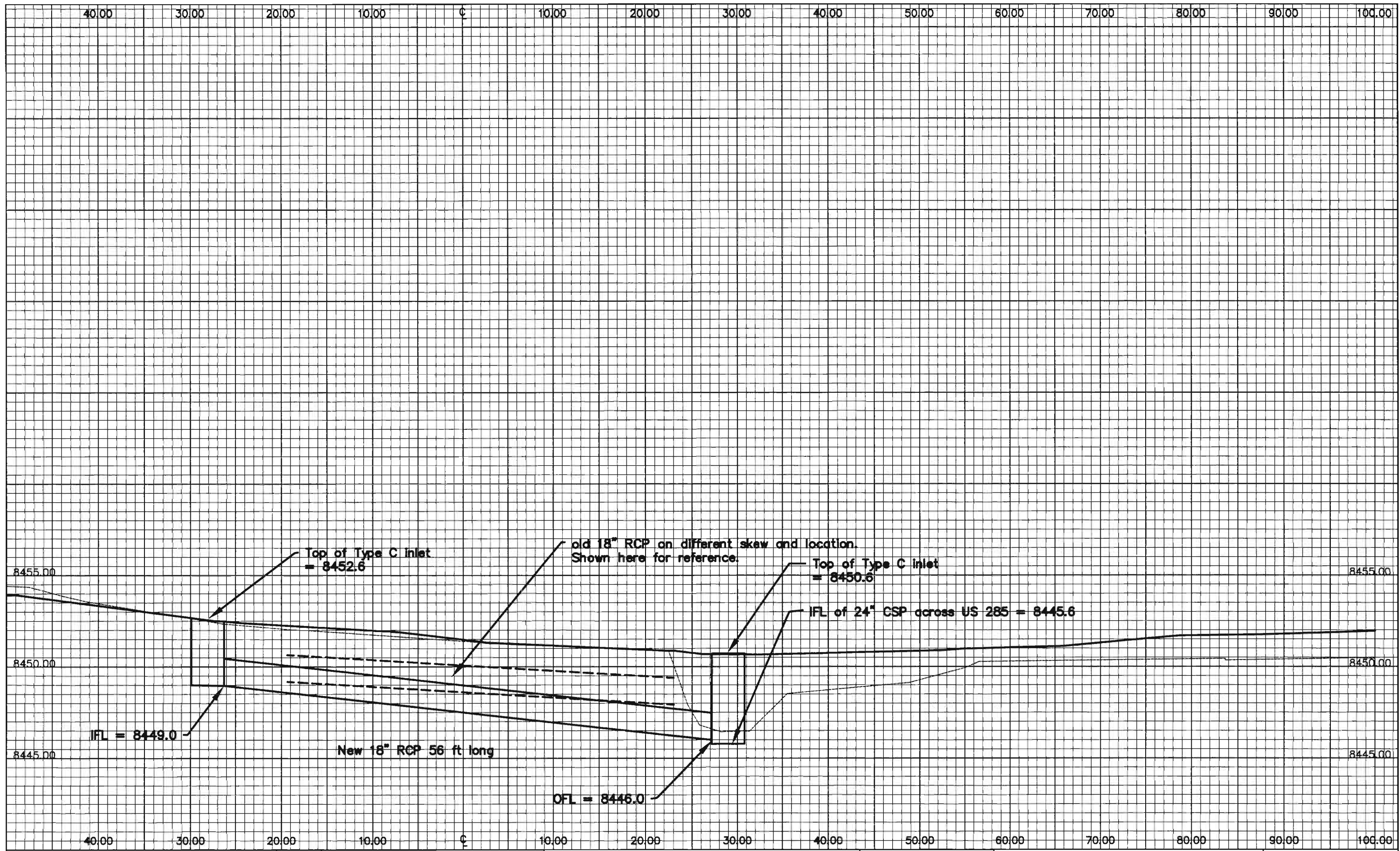
NE/4 Sec.27
 & NW/4 Sec.27
 & SW/2 Sec.27
 T.6 S, R.71 W 6th P.M.
 JEFFERSON COUNTY, COLORADO



Survey Control Diagram				
TMOSS Site				
Project Number: NH 2854-092				
Project Location: US 285 Spot improvement				
Project Location: SEC.27, T.6S, R.71W, 6 P.M.				
Project Code:	Last Mod. Date	Subset Sheets	Sheet No.	Total No. of Sheets
13384	00-00-00	2 of 2	27	xxx


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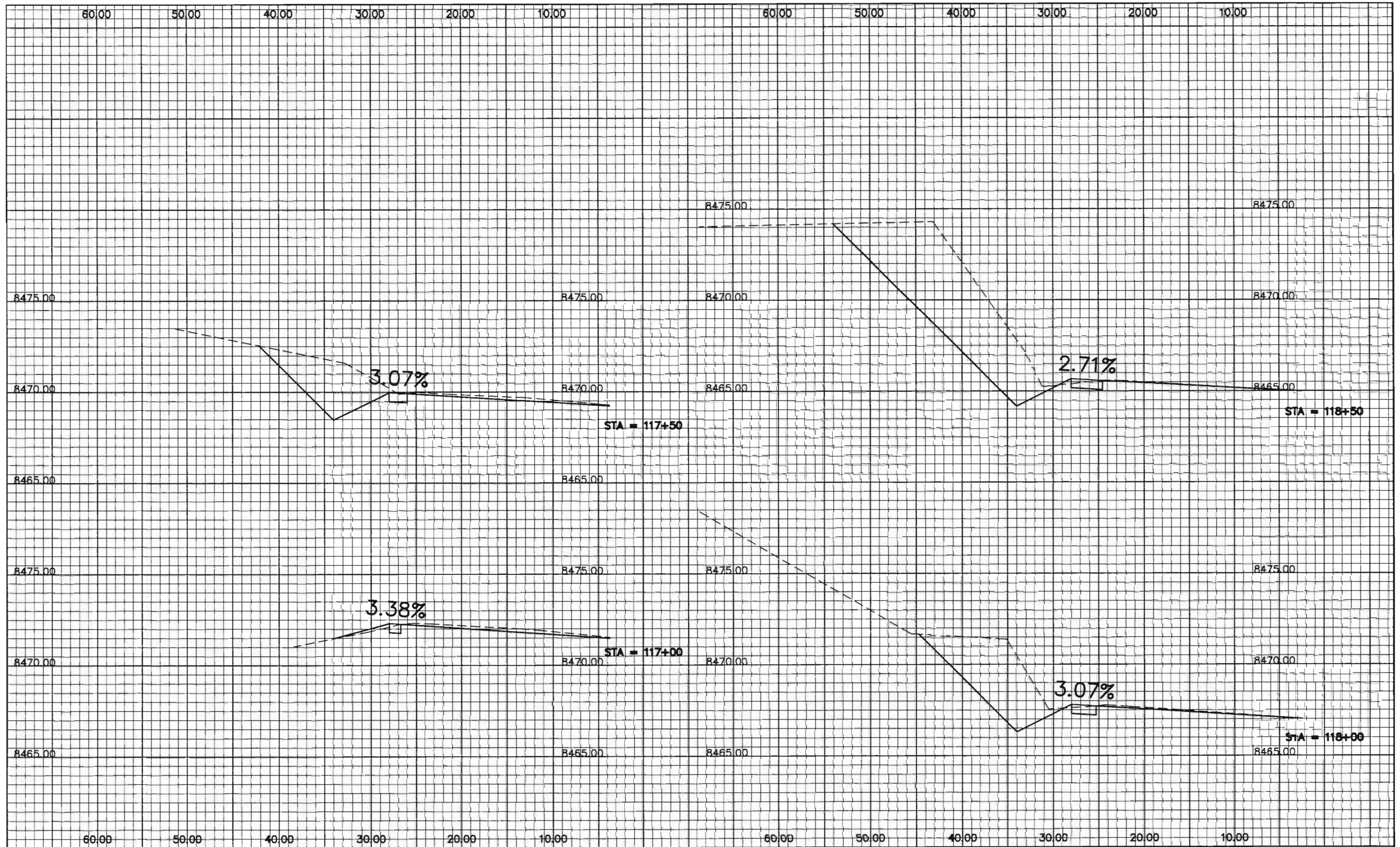
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Colorado Department of Transportation

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 Region 1 RRH

As Constructed
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Structure Cross Section
 Across Mtn. View Dr.
 Site 3

Project No./Code	NH 2854-092
	14071
Sheet Number	28



Computer File Information	
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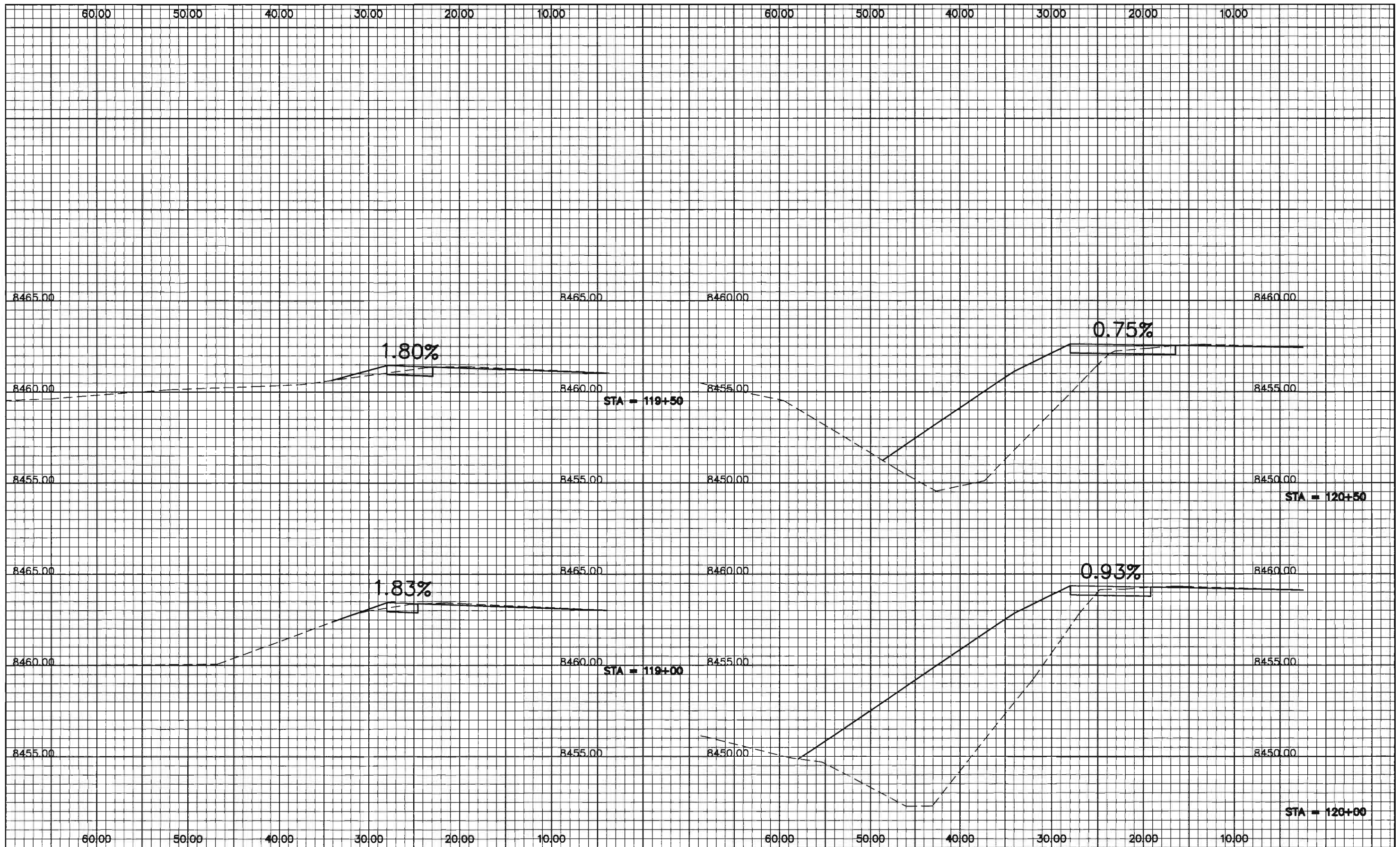
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Cross Section Sheets
 Richmond Hill
 Site 3

Project No./Code	
NH 2854-092	
14071	
Sheet Number	29



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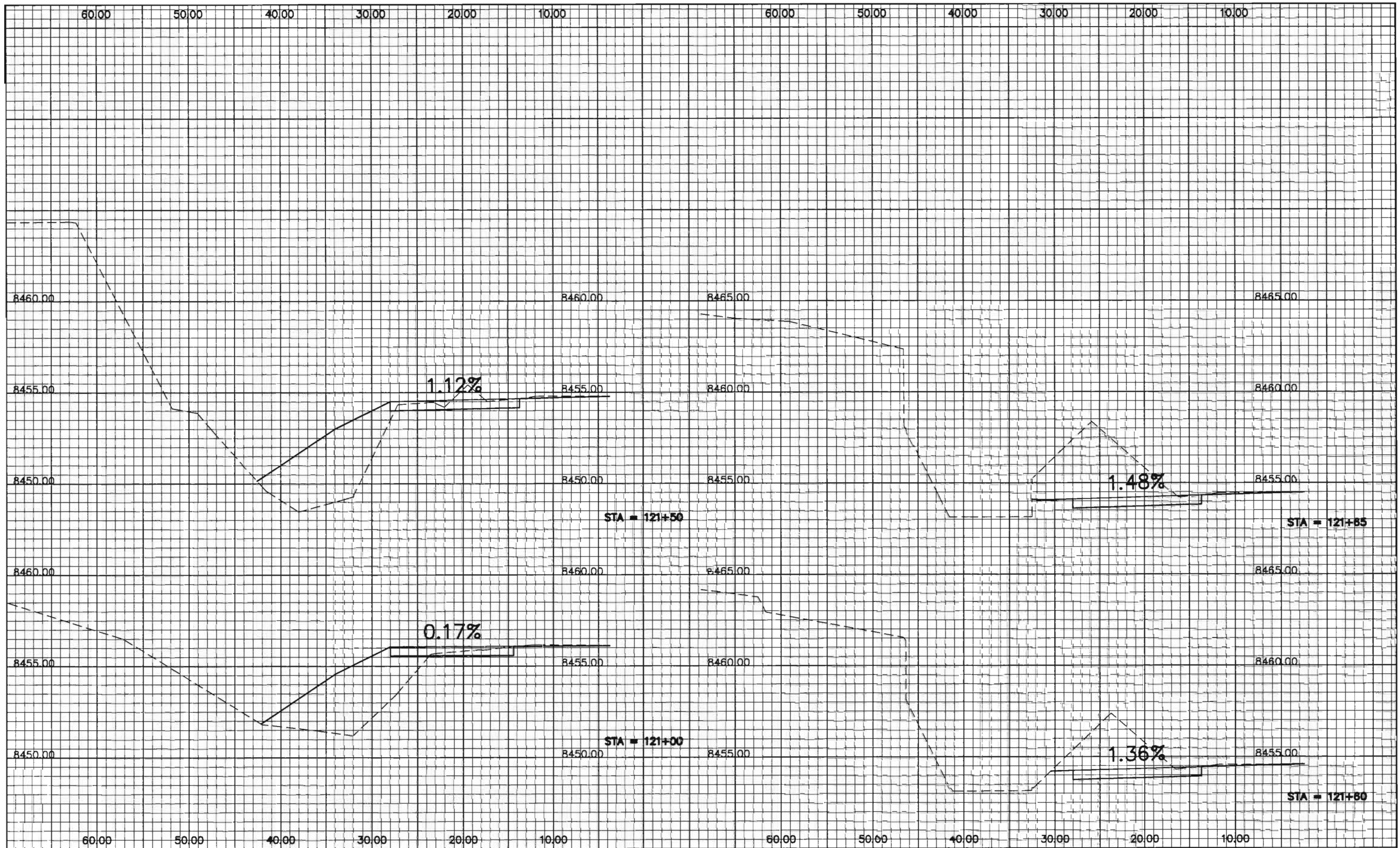
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Cross Section Sheets
 Richmond Hill
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Project No./Code	
NH 2854-092	
14071	
Sheet Number	30



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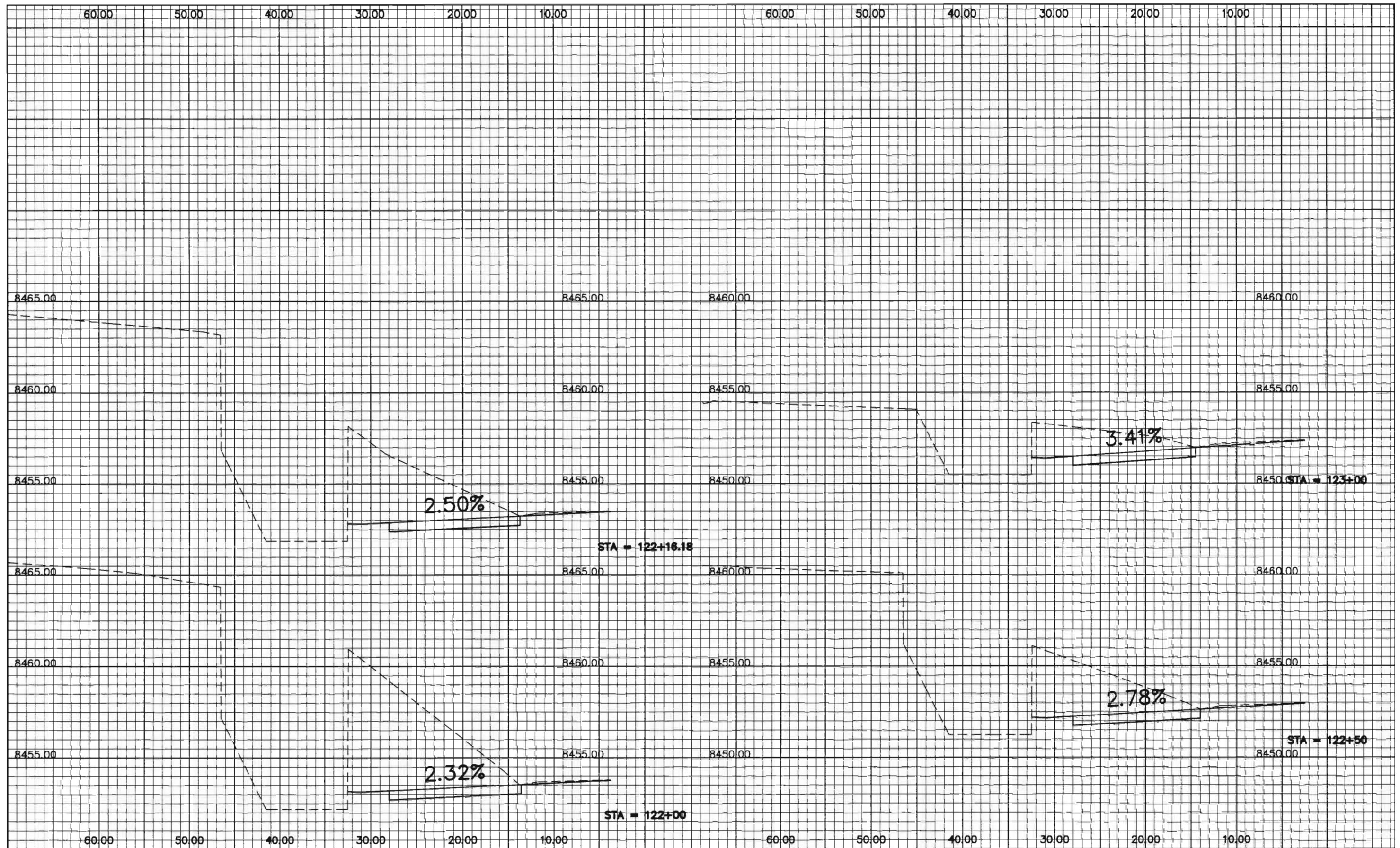
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Cross Section Sheets
 Richmond Hill
 Site 3

Project No./Code	
NH 2854-092	
14071	
Sheet Number	31



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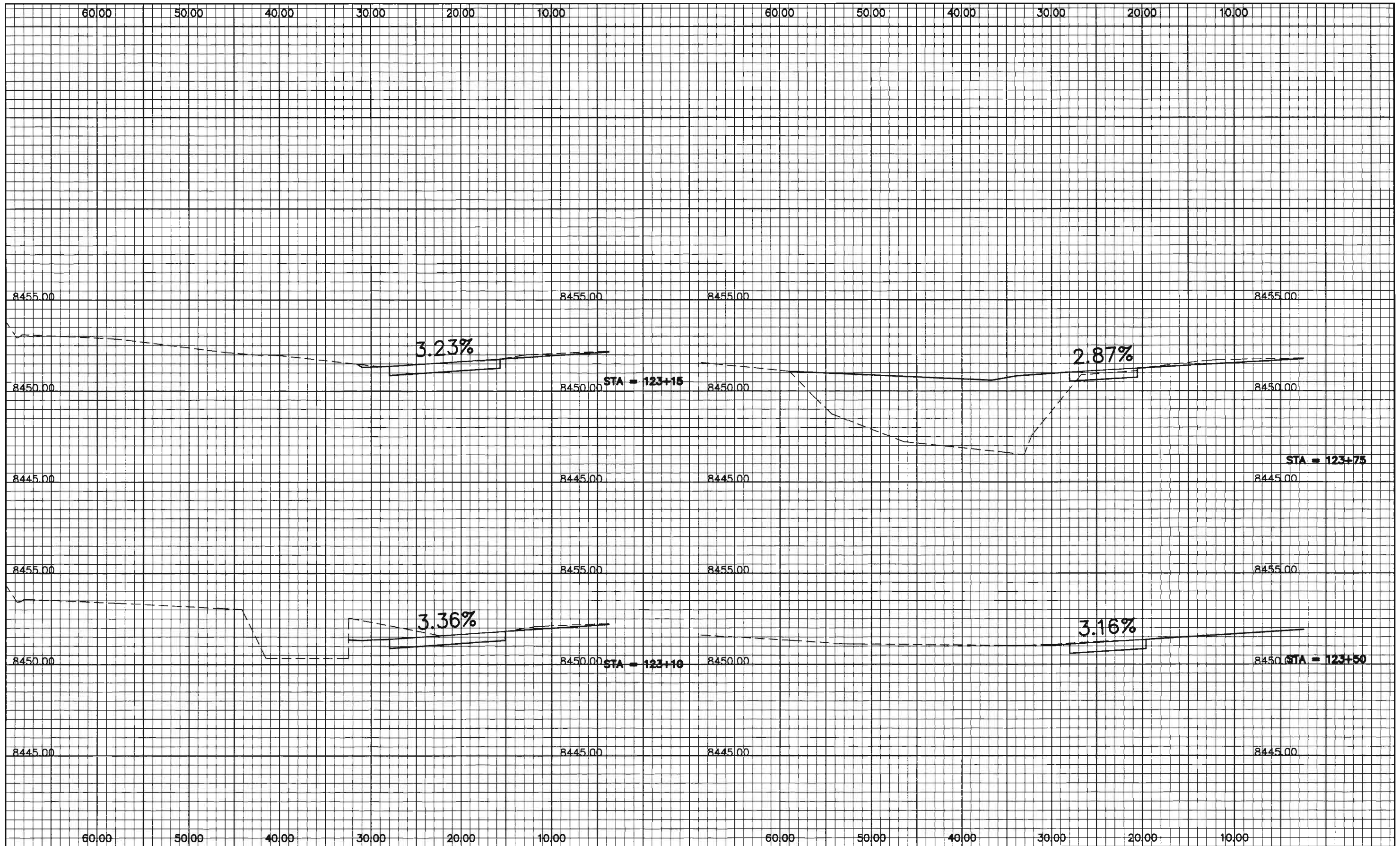
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Cross Section Sheets
 Richmond Hill
 Site 3

Project No./Code	
NH 2854-092	
14071	
Sheet Number	32



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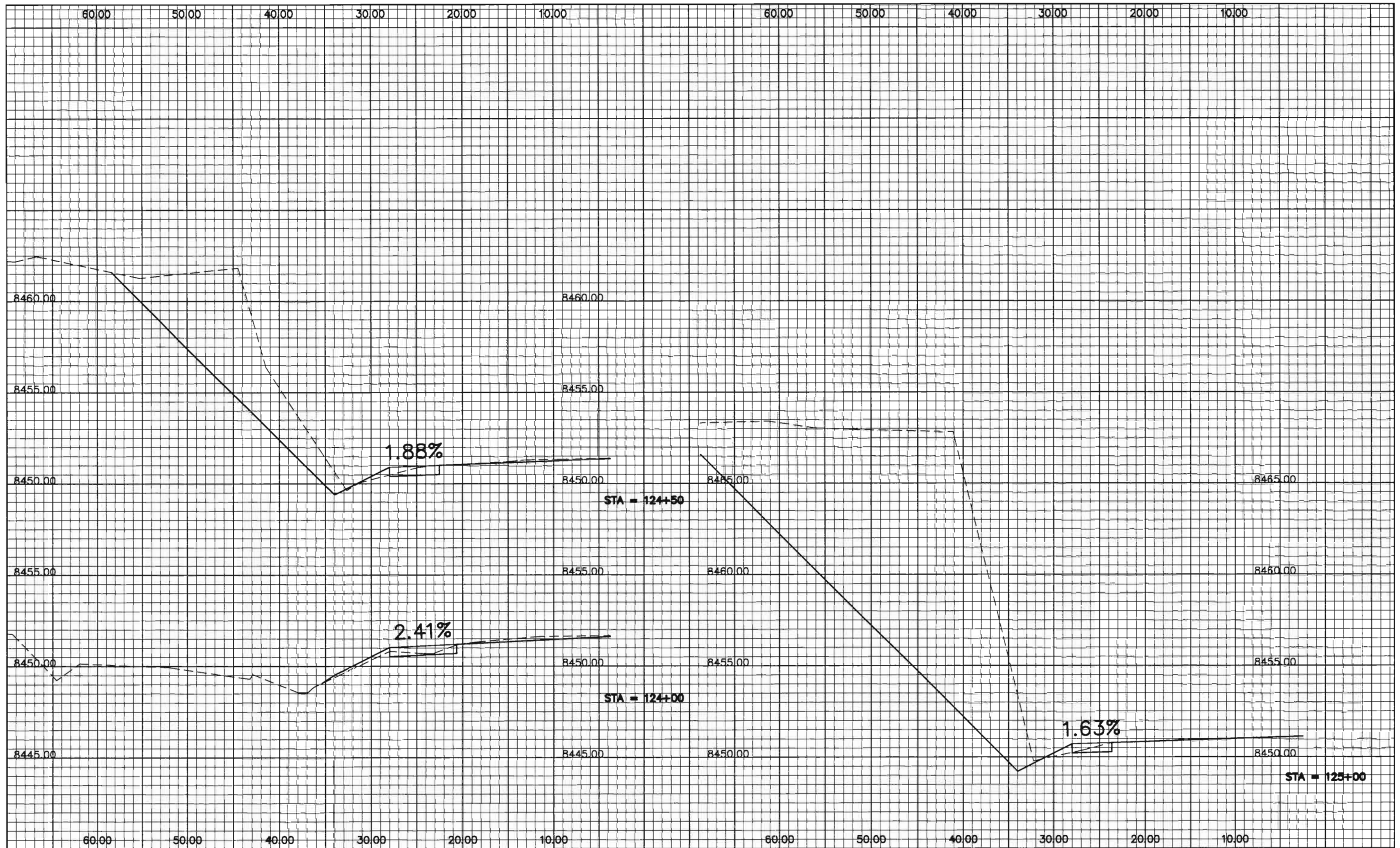
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 Region 1 RRH

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Cross Section Sheets
 Richmond Hill
 Site 3

Project No./Code	
NH 2854-092	
14071	
Sheet Number	33



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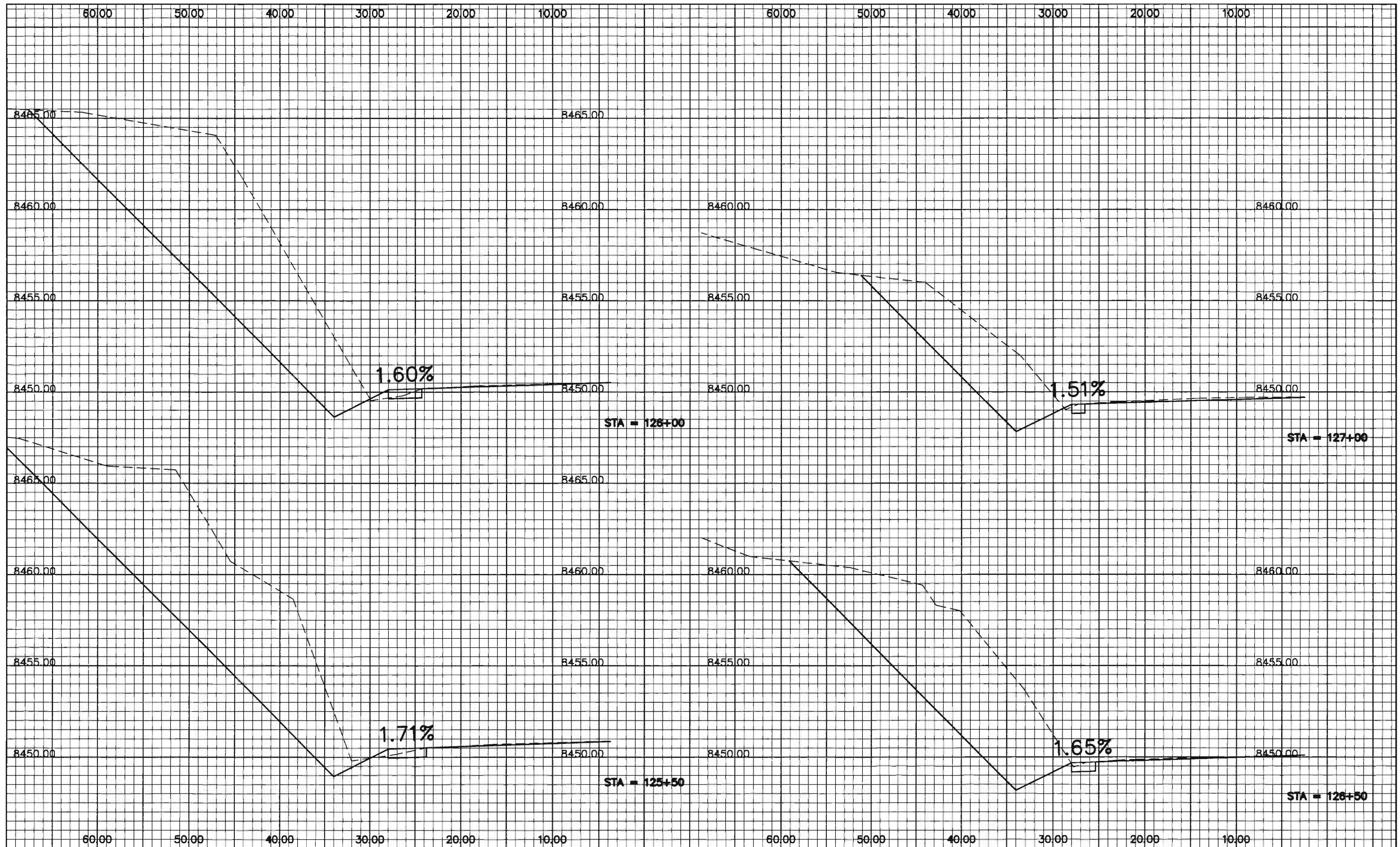
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Colorado Department of Transportation

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Cross Section Sheets
 Richmond Hill
 Site 3

Project No./Code	
NH 2854-092	
14071	
Sheet Number	34



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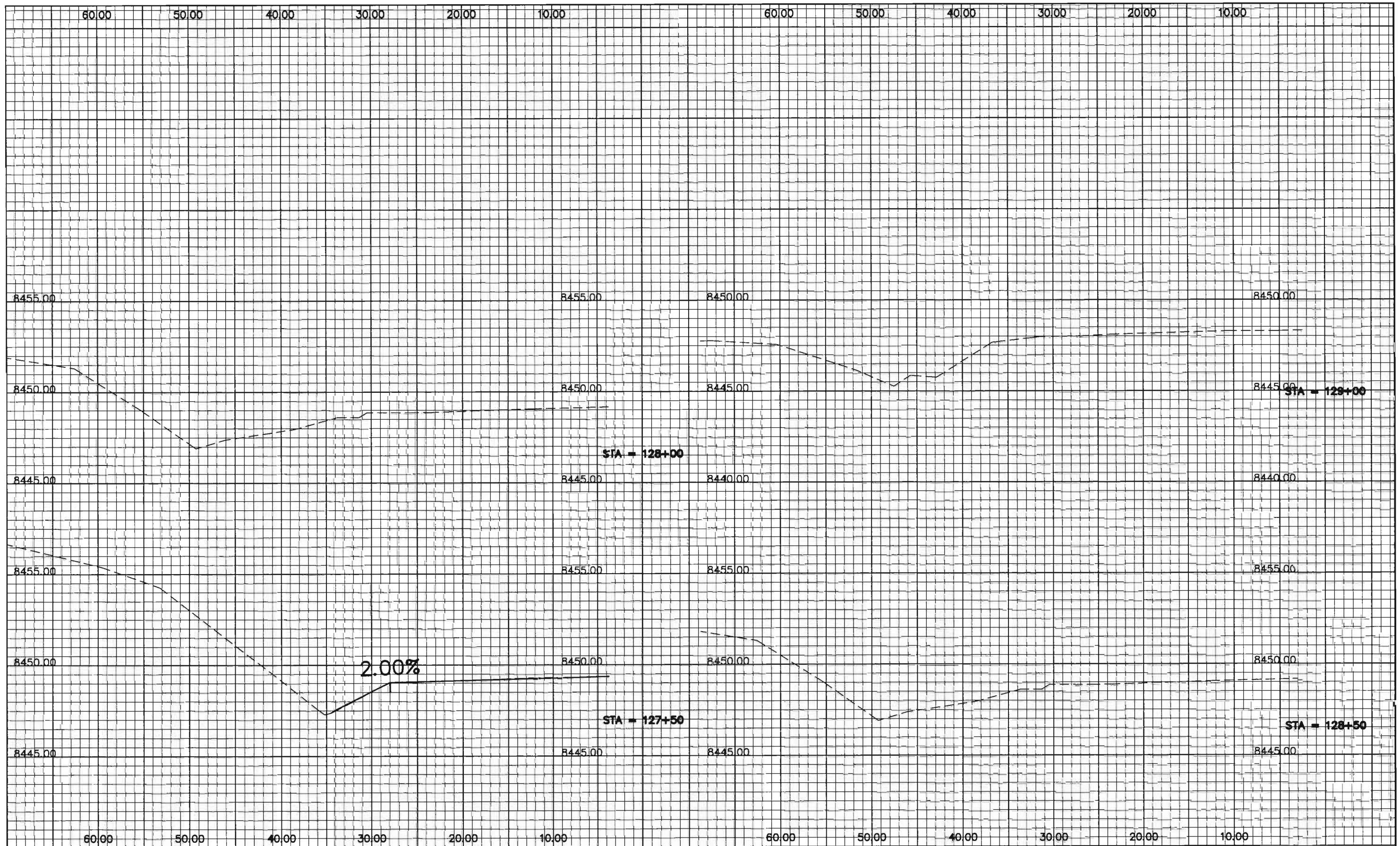
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Cross Section Sheets
 Richmond Hill
 Site 3

Project No./Code	
NH 2854-092	
14071	
Sheet Number	35



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Cross Section Sheets
Richmond Hill
Site 3

Project No./Code	
NH 2854-092	
14071	
Sheet Number	36