

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	A-580-01-64	1964	3	15

Sta. 30+00 Rt.
Demolish existing C.D.I. (Incidental to Roadway Exc.). Extend existing 18" Culvert Pipe. Construct new C.D.I.
Estimated Quantities
Struct. Exc. = 13.0 c.y.
Class "A-1" Conc. = 2.0 c.y.
18" R.C.C.P. cl. III 14.0 Lin. Ft.
For C.D.I. Detail, see below.

Sta. 29+45 to 36+60 Lt.
Install metal guard rail with concrete posts. 712.5
Est. Quant. = 712.5 Lin. Ft.

Curve Data R.I. #4
Δ = 63° 23'
Δ/2 = 31° 41' 30"
R = 375.00
T = 240.67
C = 405.09
Lc = 427.93

Centerline Curve Data
Δ = 63° 23'
Δ/2 = 31° 41' 30"
R = 410
T = 263.13
C = 448.90
Lc = 467.87

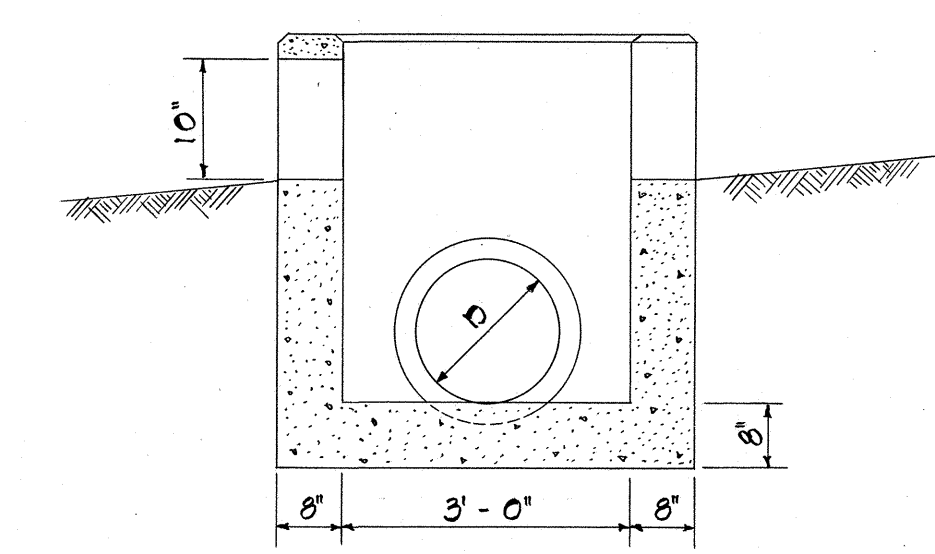
Curve Data R.I. #3
Δ = 64° 36'
Δ/2 = 32° 18'
R = 785.00
T = 496.26
C = 838.93
Lc = 885.07

Sta. 22+00 to Sta. 28+20 Lt.
Install metal guard rail with concrete posts. 687.5
Est. Quant. = 687.5 Lin. Ft.

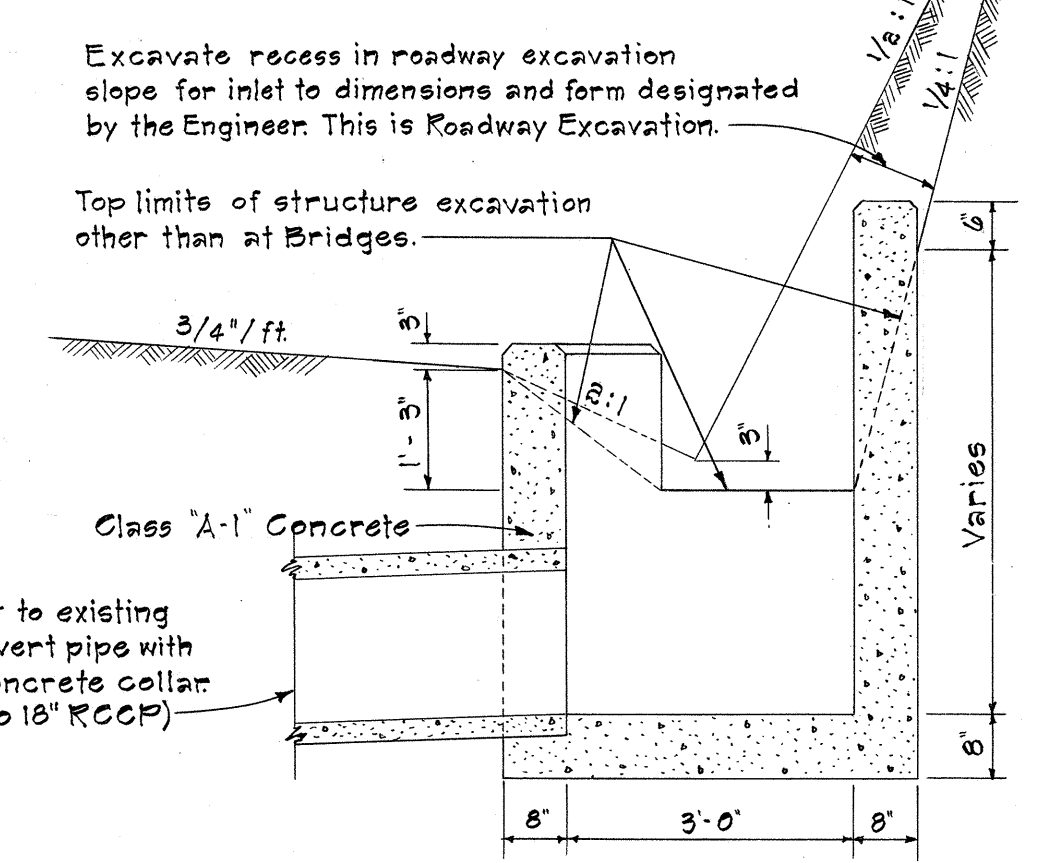
GENERAL NOTES

- All existing gratings to be salvaged.
- All existing guard rail posts to be salvaged.
- All salvaged materials shall be cleaned to the satisfaction of the Engineer and neatly stockpiled in the Highway Division Baseyard at Wailua.
- Work involving the removal of all existing guard rails and guard rail posts, and salvaging, cleaning, hauling and stockpiling of gratings and guard rail posts will not be paid for directly, but shall be considered to be incidental to the various contract items.
- All necessary utility relocation work to be done by others.
- The existing H.T. Co. Underground Cable from Sta. 59+40 to the end of project is to be relocated overhead. (Work to be done entirely by others)
- The Contractor shall coordinate his work with the respective utilities.

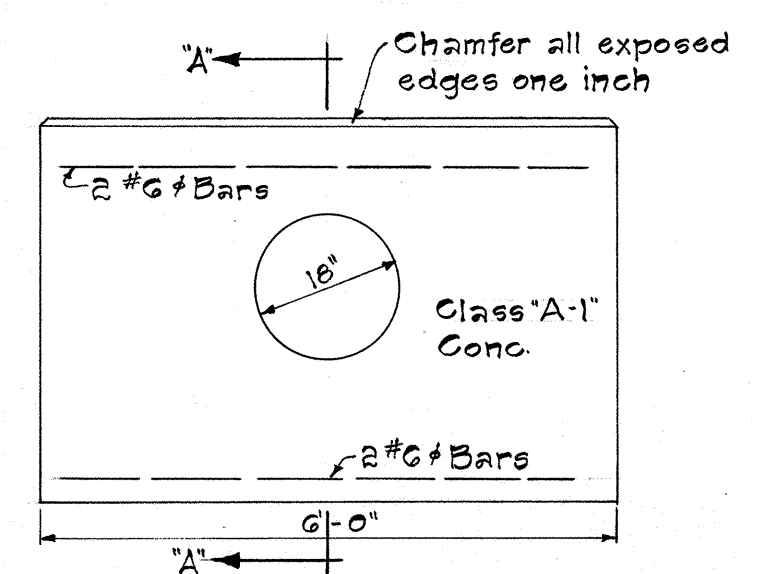
B.M. (+) ON C.D.I., 20' RIGHT OF STA. 25+06 ELEV. 26.39



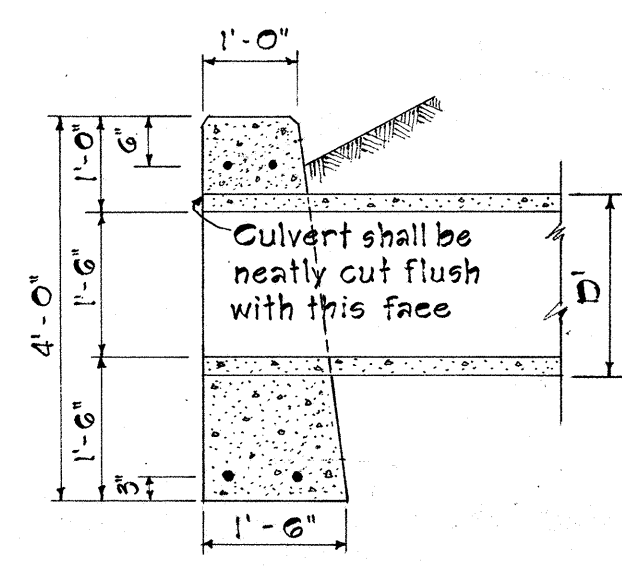
SECTION 'B-B'



SECTION 'A-A'

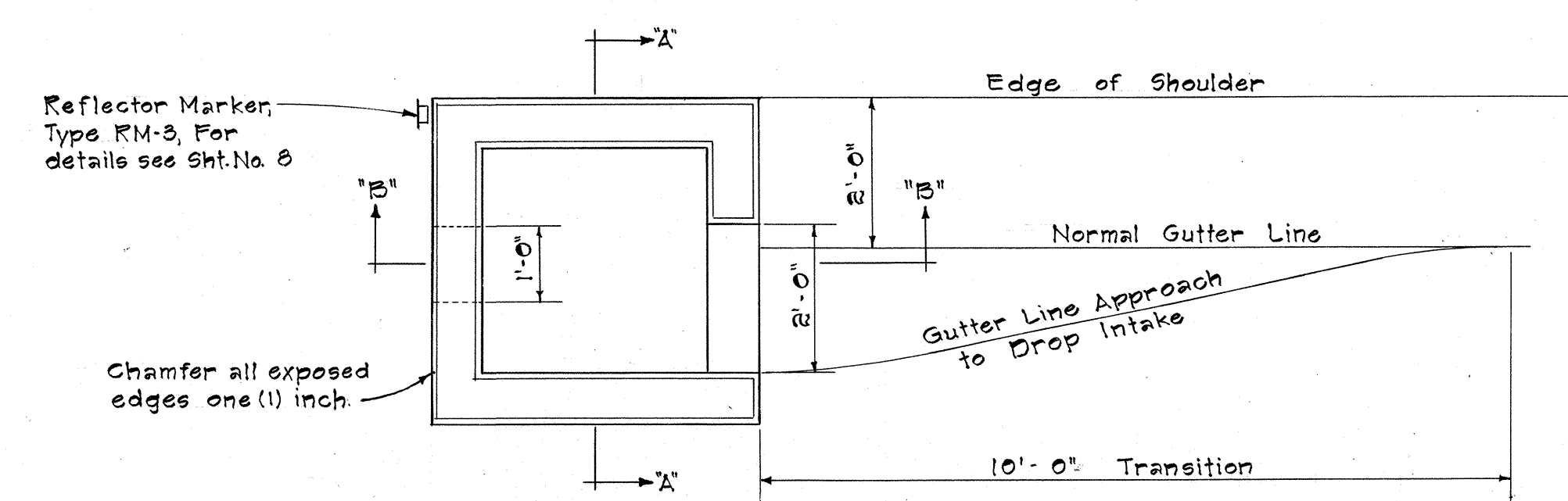


ELEVATION



SECTION 'A-A'

DETAIL OF CONCRETE HEADWALL
Scale: 1/8" = 1'-0"



PLAN

DETAIL OF NEW CONCRETE DROP INTAKE
Scale: 1/8" = 1'-0"

FED. ROAD DIST. No.	STATS.	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	A-580-0164	1966	4	15

PLAN	SURVEYED	DATE
NO.	BY	
NOTE: BOOK, ALIGNMENT CHECKED, RT. OF WAY CHECKED.		

PROFILE	SURVEYED	DATE
NO.	BY	
NOTE: BOOK, GRADES CHECKED, 5' INT. NOTED, STRUCTURE, ELEVATIONS CHKO.		

B.M. "O" ON SOUTHWEST CORNER OF OPAEKAA STREAM BRIDGE, 13' RIGHT OF STA. 36+68 ELEV.=16.96

PC STA. 32+06.41
PT. STA. 33+50.56
CURVE DATA P1#5
Δ = 8° 15' 30"
4/Δ = 4° 07' 45"
R = 1,000.00
T = 72.19
C = 144.01
Lc = 144.14

Sta. 33+50 Rt.
Demolish existing C.D.I. (Incidental to Roadway Exc.) Extend existing 18" Culvert Pipe. Construct new C.D.I.
Estimated Quantities: 11.8
Struct. Exc. = 10.8 c.y.
Class "A-I" Conc. = 2.0 c.y.
18" R.C.C.P., C.I. III = 10 Lin. Ft.
For C.D.I. Detail, see Sht. No. 3

PC STA. 34+41.42
PT. STA. 34+49.95
CURVE DATA
Δ = 15° 12' 30"
4/Δ = 7° 36' 15"
R = 783.00
T = 96.79
C = 191.88
Lc = 192.44

New E.P.T. STA. 36+33.86
PT. STA. 36+41.09

37+30 38+03
Sta. 37+25 to 37+85 Lt.
Install metal guard rail with concrete posts. 75
Est. Quant. = 65 Lin. Ft.

Install R.M.-3 Reflector Markers with Posts at Bridge Approaches as Shown.
Est. Quant. = 2 Ea.

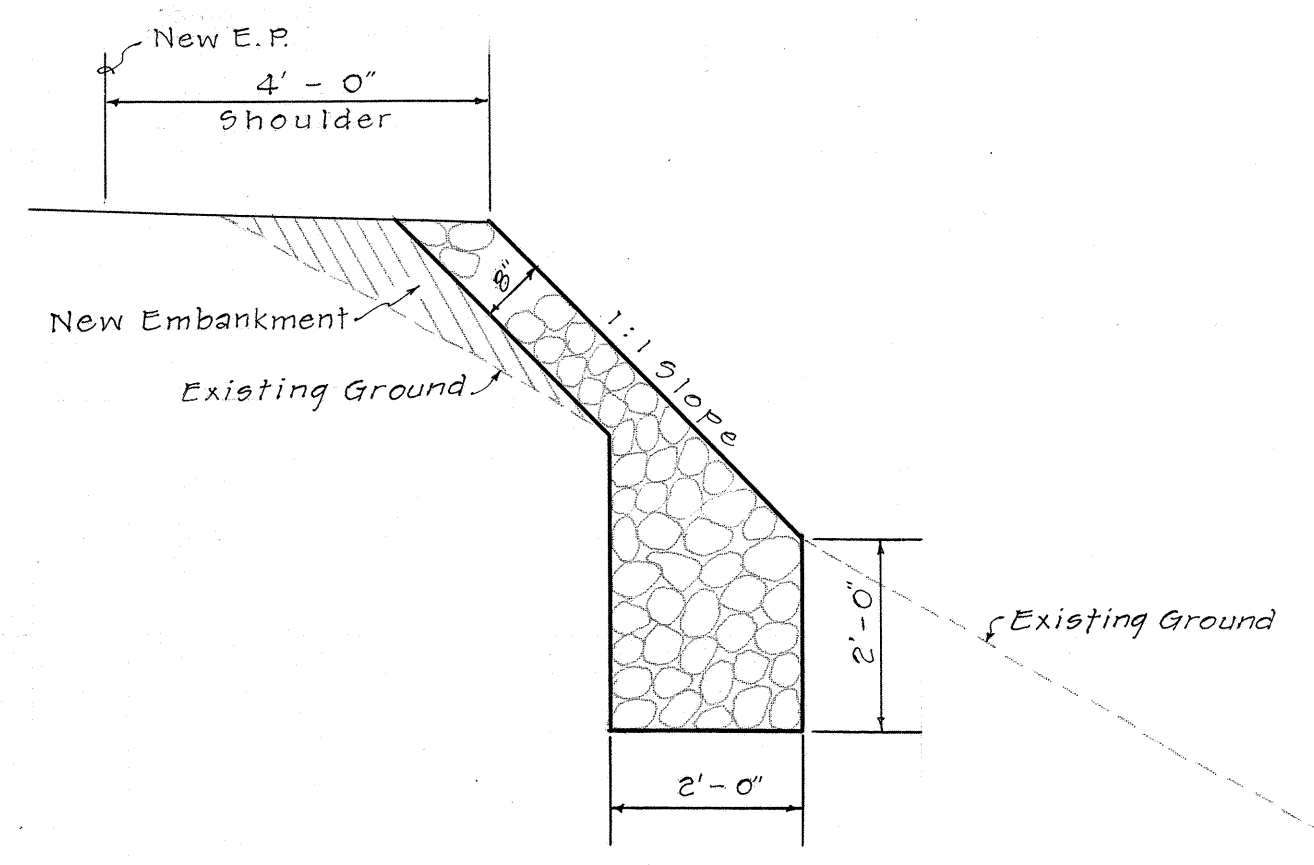
Sta. 37+25 to 39+60 Rt. Side
Construct DRM Wall. For Detail See Below
Est. Quant.
DRM 72 c.y.
Struc. Exc. 45.4

Sta. 37+50 to Sta. 39+30 Rt.
Install R.M.-1 Reflector Markers with Posts.
Est. Quant. 3 Ea.

Resurface existing Opaekaa Bridge with 2 1/4" A.C. Pavement
3/4" A.C. Mix No. V
2" A.C. Mix No. III

PC STA. 40+23.47
PT. STA. 42+83.56
CURVE DATA
Δ = 14° 34'
4/Δ = 7° 27'
R = 1,000.00
T = 130.76
C = 250.32
Lc = 250.09

Sta. 39+00 to Sta. 57+00 Lt.
Install RM-1 Reflector Markers with Posts.
Est. Quant. = 13 Ea.



DETAIL OF D.R.M. WALL
Scale: 1/8" = 1'-0"

NEW & CURVE DATA

$\Delta = 28^{\circ} 11'$
 $\frac{A}{2} = 14^{\circ} 05' 30''$
 $R = 1750.00'$
 $T = 439.30'$
 $C = 852.16'$
 $L_c = 860.81'$

\$ CURVE DATA
 $\Delta = 12^\circ 43'$
 $\% = 2^\circ 51' 30''$
 $R = 400.00'$
 $T = 67.51'$
 $C = 136.97'$
 $LC = 137.65'$

NEW & CURVE DATA

$$\begin{aligned}\Delta &= 60^\circ 54' \\ \frac{\Delta}{2} &= 30^\circ 27' \\ R &= 500.00' \\ T &= 293.94' \\ C &= 506.79' \\ Lc &= 531.45'\end{aligned}$$

\$ CURVE DATA

$\Delta = 67^\circ 20'$
 $4\frac{1}{2} = 33^\circ 40'$
 $R = 493.00'$
 $T = 328.38'$
 $C = 546.60'$
 $L_c = 579.37'$

Sta. 53+25 Rt.
Demolish existing C.D.I. (Incidental
to Roadway Exc.) Extend existing
18" Culvert Pipe. Construct new C.D.I.
Estimated Quantities: 11.4
Struct. Exc. " = 4.0 c.y.
Class "A-1" Conc. 1.9 = 2.5 c.y.
18" RCCP, Class III = 12 Lin. Ft.
For C.D.I. Detail, see Sht. No. 3

B.M. (+) ON C.D.I., 23' RIGHT OF STA. 46+00 ELEV. = 9.97

~~30+50~~ ~~48+50~~
 Sta. ~~45+50~~ to Sta. ~~48+00~~ Lt. Side
 Remove Existing Fence and Construct
 Std. Wire Fence Along R/W
 Est. Quant. ~~250~~ l. f.
 940

Sta. 46+00 Rt.
Demolish existing C.D.I. (Incidental
to Roadway Exc.) Extend existing
18" Culvert Pipe. Construct new C.D.I.
Estimated Quantities:
Struc. Exc. 386 c.y.
Class "A-1" Conc. 316 c.y.
18" R.C.C.P., Cl. III 5 Lin. Ft.
For C.D.I. Detail, see Sheet No. 3

Sta. 50+00 Rt.
Demolish existing C.D.I. (Incidental
to Roadway Exc.) Extend existing
18" Culvert Pipe. Construct new C.D.I.
Estimated Quantities: 4.0
Struct. Exc. 1.6 ^{1.6} 4 c.y.
Class "A-1" Conc. 1.6 ^{1.6} 25 c.y.
18" RCCP, C.III 16 ¹⁶ 42 Lin. Ft.
For C.D.I. Detail, see Sht. No. 9

PLAN	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK		
ALIGNMENT CHECKED		
RT. OF WAY CHECKED		
NO.		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	PILOTED		
NO.	GRADES CHECKED		
	8. MIS NOTED		
	STRUCTURE NOT AT NS CHWD.		

Δ and Δ
 CURVE DATA
 $\Delta = 11^\circ 54'$
 $\Delta e = 5^\circ 57'$
 $R = 800.00'$
 $T = 83.38'$
 $C = 165.86$
 $Lc = 166.16'$

Δ and δ
 CURVE DATA
 $\Delta = 5^\circ 40'$
 $\delta_2 = 2^\circ 50'$
 $R = 2,000.00'$
 $T = 98.98'$
 $C = 197.72'$
 $LC = 197.80'$

Sta. ~~66+25~~⁶⁶⁺³⁸ to Sta. 66+75 Rt.
Install Metal Guard Rail with
Concrete Posts. ~~50~~^{37.5} Lin. Ft.

Diagram illustrating the cross-section of a bridge structure, showing various components and dimensions:

- Dimensions:**
 - Top width: 12"
 - Right side height: 2' Min.
 - Right side width: 3'-#4 cont.
 - Right side width: #4 @ 12
 - Right side width: 15'
 - Right side width: 3' 6"
 - Bottom width: 9"
 - Bottom width: 6"
- Structural Components:**
 - Finished Grade
 - Varies
 - 5-#4
 - Existing Headwall & Culvert
 - Cut off existing 1 1/2" pipe railing

NOTE:
Clean all existing
pipe railing of rust
before encasing
in concrete.

Technical drawing of a foundation wall cross-section. The drawing includes the following details:

- Dimensions:**
 - Overall height: 8'-0"
 - Overall width: 1'-0"
 - Top section width: 8" cl.
 - Bottom section width: 4'-0"
 - Foundation width: 2'-0"
 - Foundation depth: 4'-0"
 - Foundation thickness: 1'-0"
 - Foundation depth from grade: 4'-0"
 - Foundation depth from existing headwall: 4'-0"
- Reinforcement:**
 - Top section: #4 @ 18" on face
 - Bottom section: 3-#4 on face
 - Foundation: 4-#4 @ 20" shown, #4 @ 15"
- Labels:**
 - Finished Grade
 - Waterproofing
 - Existing Headwall

CONC. RETAINING WALLS AT STA. 66+78