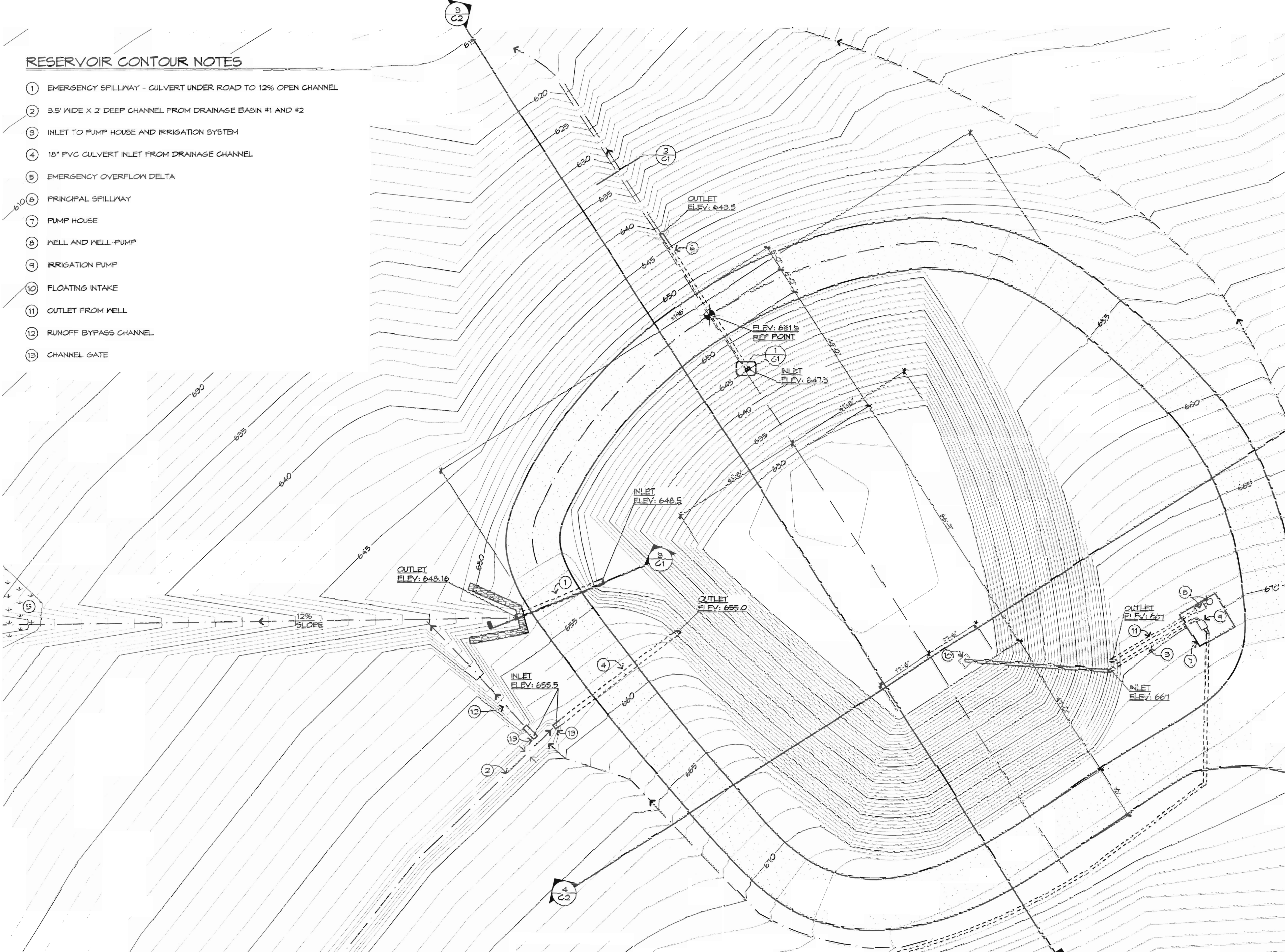
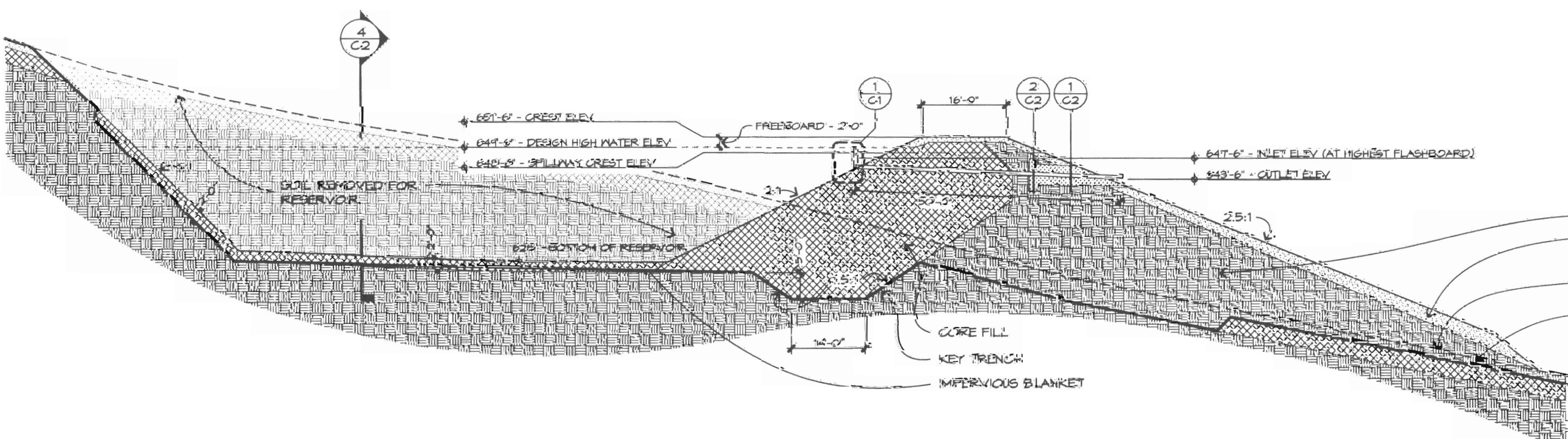


RESERVOIR CONTOUR NOTES

- 1 EMERGENCY SPILLWAY - CULVERT UNDER ROAD TO 12% OPEN CHANNEL
- 2 3.5' WIDE X 2' DEEP CHANNEL FROM DRAINAGE BASIN #1 AND #2
- 3 INLET TO PUMP HOUSE AND IRRIGATION SYSTEM
- 4 18" PVC CULVERT INLET FROM DRAINAGE CHANNEL
- 5 EMERGENCY OVERFLOW DELTA
- 6 PRINCIPAL SPILLWAY
- 7 PUMP HOUSE
- 8 WELL AND WELL-PUMP
- 9 IRRIGATION PUMP
- 10 FLOATING INTAKE
- 11 OUTLET FROM WELL
- 12 RUNOFF BYPASS CHANNEL
- 13 CHANNEL GATE



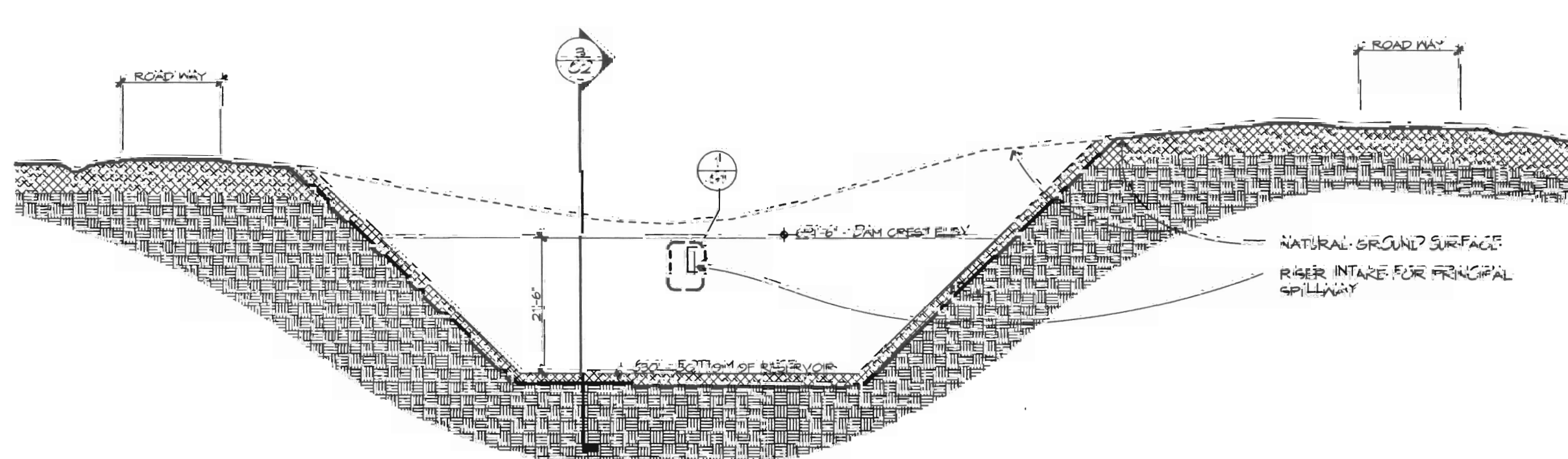
RESERVOIR CONTOUR MAP
1" = 30'



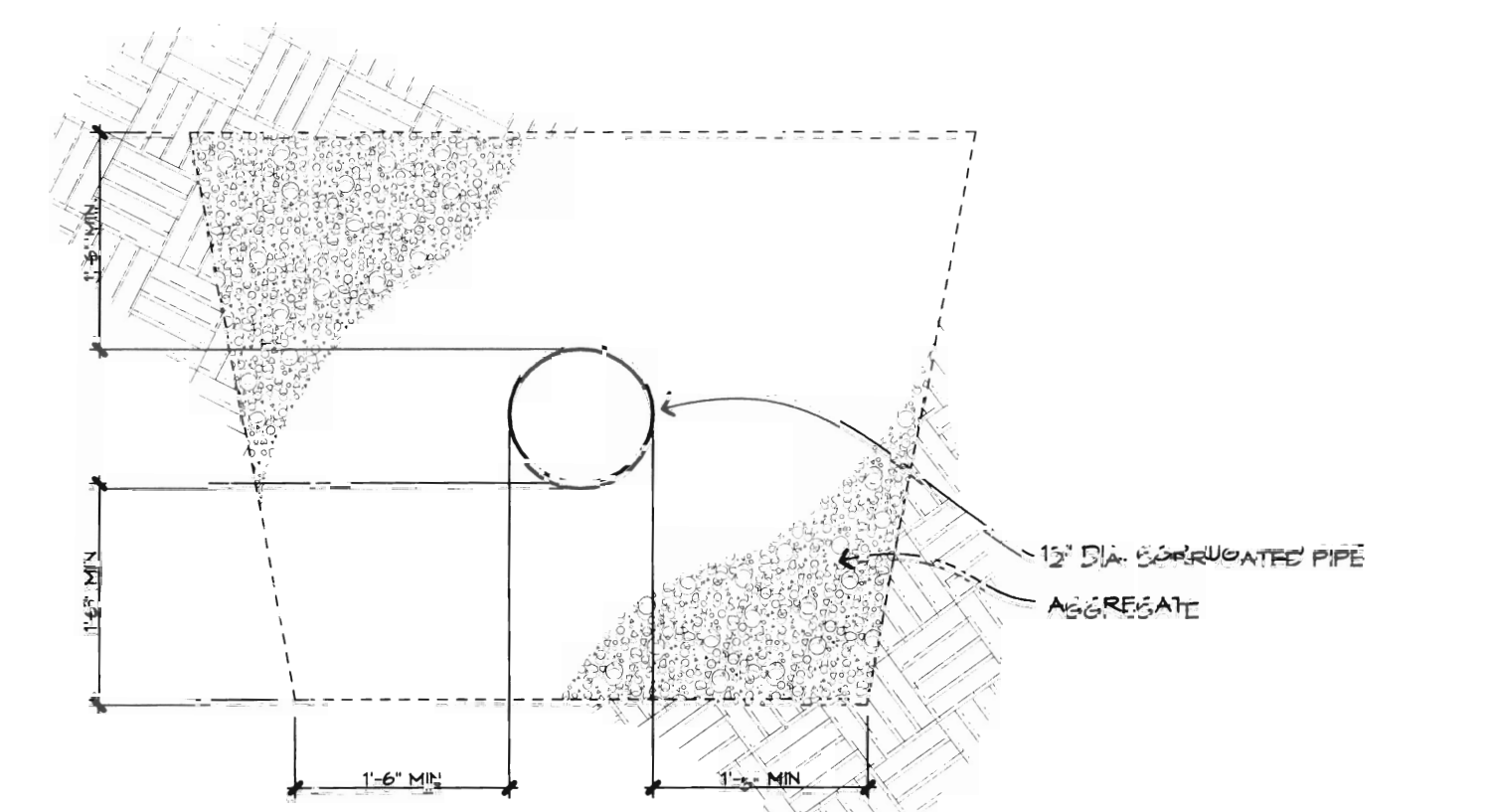
LONGITUDINAL SECTION
1" = 30'

SECTION LEGEND

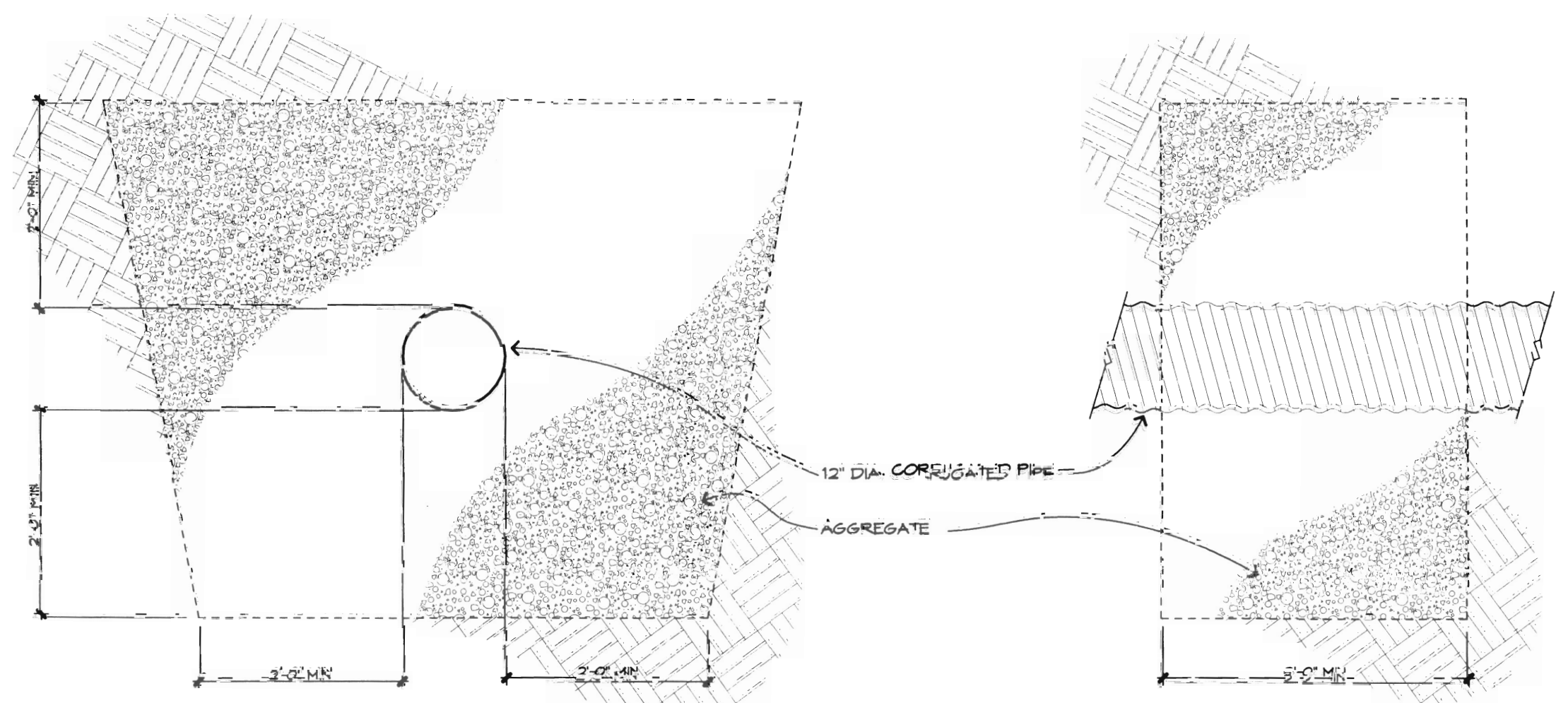
	TOPSOIL		REMOVED TOPSOIL
	SILTY CLAY LOAM AND SILTY CLAY		REMOVED SILTY CLAY LOAM AND SILTY CLAY
	WEATHERED SANDSTONE		REMOVED WEATHERED SANDSTONE



CROSS SECTION
1" = 30'



FILTER AND DRAINAGE DIAPHRAGM
3/4" = 1'-0"



FILTER AND DIAPHRAGM
3/4" = 1'-0"

LONG HAUL TIMBER & CATTLE LLC
DEEP END POND

RECEIVED
JAN 9 2009
WATER RESOURCES DEPT
SALEM OREGON

RECEIVED
JAN 29 2009

PROJECT ASSUMPTIONS

DESIGN STORM EVENT:
50 YEAR EVENT - 5" IN 24 HOURS (NRCS)

POND CAPACITY:
± 3.6 ACRE FEET

WATER SOURCE:
RUNOFF FROM BASIN #1 AND #2, SUPPLEMENTED BY WELL WATER FROM A
PROPOSED WELL.

WATER USE:
PRIMARILY IRRIGATION IN PASTURE AREA AS WELL AS POTENTIAL GENERAL
AGRICULTURAL USES AND RECREATIONAL USES

WATER USE ESTIMATES

Month	# of irr. cycles	Amount Used to Irrigate (acre-feet)	Evaporation from Pond (acre-feet)	Run-off from Basin #1 and #2 (estimate in acre-feet) ³	Well Water added (acre-feet)	Amount of water in Pond (acre-feet)
Jan.	-	-	-	0.465	-	3.2653
Feb.	-	-	-	0.123	-	3.3883
March	-	-	-	0.117	-	3.5053
April	-	-	-	-	-	3.5053
May	2	-0.3726	-0.14	0.027	0.58	3.6
June	5	-0.9319	-0.17	-	0.575	3.0731
July	6	-1.1178	-0.22	-	0.575	2.3103
August	4	-0.7452	-0.2	-	0.575	1.4401
Sept.	4	-0.7452	-0.13	-	0.575	1.6399
Oct.	2	-0.3726	-0.06	0.032	0.575	1.8143
Nov.	-	-	-	0.308	-	2.1223
Dec.	-	-	-	0.678	-	2.8003
Total irrigation cycles =	23	-4.2853	-0.92	1.75	3.455	2.8003
Total Amount of water used =						
Total Amount of water evaporated =						
Total Estimated Run- off ² =						
Estimated Well water used =						
Amount of water in pond at end of year =						

¹ Evaporation quantities calculated from monthly average pan evaporation at Fern Ridge Reservoir station.
² Total Estimated Runoff was determined by taking an average of annual runoff estimates from Basin #1 and
#2 based on precipitation amounts measured at Fern Ridge Reservoir station from 2002-2007.
³ Estimated amounts of monthly runoff were determined by finding the percentage of runoff produced monthly
from total runoff produced from 2002-2007. The percentages were then used to divide the Total Estimated

PEAK RUNOFF RATES

Estimate of Peak Runoff Rate for Basin #1 and #2

$$\text{Equation: } q_p = q_u \times A \times Q$$

Known:

Drainage area: 10 acres
Elmira, Lane County
Flow Path "I" = 1150'
Watershed Slope "Y" = 25% av.
50 year, 24-hour rainfall = 5 inches
Type IA rainfall distribution
Runoff Curve Number = 67

Solution:

$T_c = .17$ hours
 $I_a/P = 0.935/5$ inches = .197
Runoff = 1.806"
 $q_u = .195$

$q_p = q_u \times A \times Q$
 $q_p = .195 \times 10 \times 1.806$
 $q_p = 3.52 \text{ cfs}$ ← ESTIMATED PEAK RUNOFF RATE
FOR BASIN #1 AND #2

PRINCIPAL SPILLWAY FLOWS

TABLE SHOWS ESTIMATED FLOWS THROUGH PRINCIPAL SPILLWAY IN RIGHT-MOST COLUMN FOR WATER HEIGHTS 647.5 (HIGHEST
FLASHBOARD LEVEL) TO 648.5 (CREST OF EMERGENCY SPILLWAY) AND INCREMENTS IN BETWEEN. THE PRINCIPAL SPILLWAY
CONSISTS OF A RISER AND A 12" DIA. PIPE. THE FLOW OF WATER THROUGH THE SPILLWAY IS DETERMINED BY COMPARING FLOW
THROUGH EACH COMPONENT OF THE SYSTEM (RISER CREST, OUTLET PIPE INLET AND OUTLET PIPE OUTLET) AT DIFFERENT WATER
LEVELS. THE COMPONENT WITH THE MOST LIMITED FLOW THEN DICTATES THE OVERALL FLOW THROUGH THE SPILLWAY.

Pond WL, ft.	head Hr, ft.	Riser Crest		Outlet Pipe		Spillway Q, cfs
		weir Qw, cfs	orifice Qo, cfs	inlet control Qc, cfs	outlet control Qo, cfs	
647.5	0.0	0.0	0.0	0.0	647.5	0.0
647.6	0.0	0.1	0.9	0.1	647.6	0.1
647.8	0.1	0.1	1.3	0.1	647.8	0.1
647.7	0.1	0.3	1.6	0.3	647.7	0.3
647.7	0.2	0.4	1.9	0.4	647.7	0.4
647.8	0.2	0.6	2.1	0.6	647.8	0.6
647.8	0.3	0.8	2.3	0.8	647.8	0.8
647.9	0.3	1.0	2.5	1.0	647.9	1.0
647.9	0.4	1.2	2.7	1.2	647.9	1.2
648.0	0.4	1.4	2.8	1.4	648.0	1.4
648.0	0.5	1.6	3.0	1.6	648.0	1.6
648.0	0.5	1.9	3.1	1.9	648.0	1.9
648.1	0.6	2.2	3.3	2.2	648.1	2.2
648.1	0.6	2.4	3.4	2.4	648.1	2.4
648.2	0.7	2.7	3.5	2.7	648.2	2.7
648.2	0.7	3.0	3.7	3.0	648.2	3.0
648.3	0.8	3.3	3.8	3.3	648.3	3.3
648.3	0.8	3.6	3.9	3.6	648.3	3.6
648.4	0.9	4.0	4.0	4.0	648.4	4.0
648.4	0.9	4.3	4.1	4.1	648.4	4.1
648.5	1.0	4.6	4.2	4.2	648.5	4.2

(SOURCE OF "HYDRAULIC COMPUTATIONS FOR DROP INLET SPILLWAYS" SPREAD SHEET: WASHINGTON STATE DAM SAFETY OFFICE)

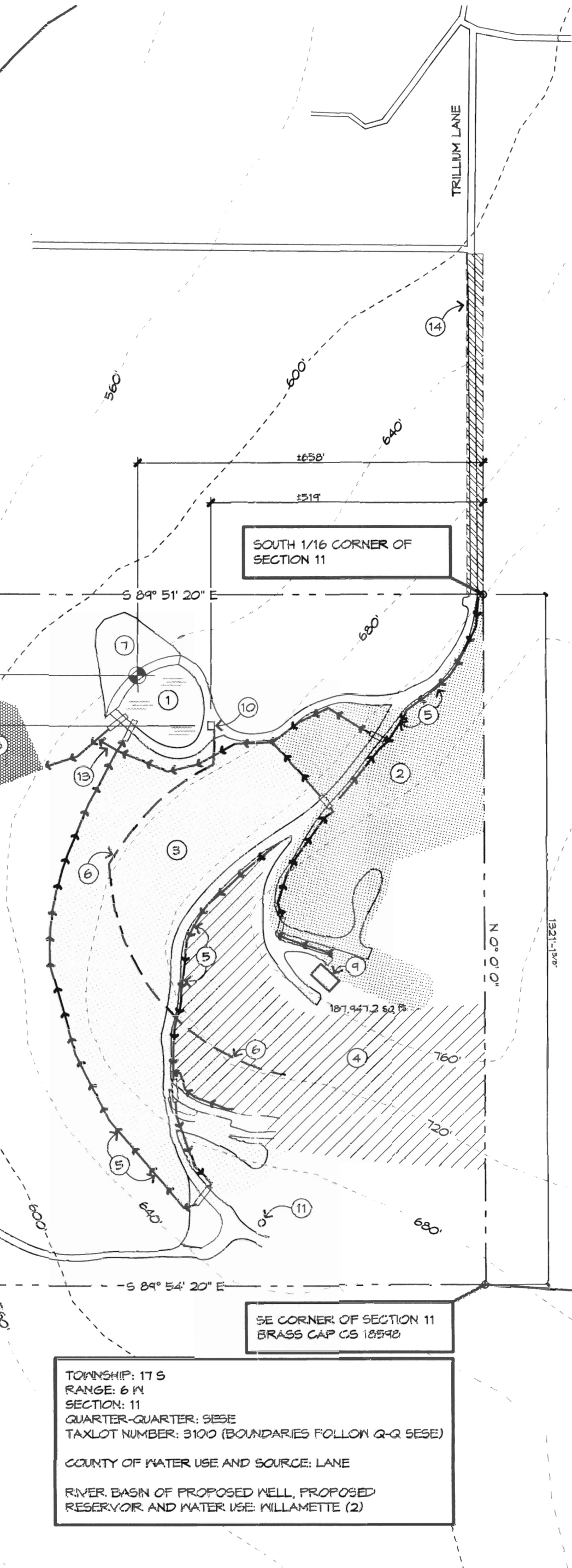
EMERGENCY SPILLWAY FLOWS

TABLE SHOWS ESTIMATED FLOWS THROUGH EMERGENCY SPILLWAY IN RIGHT-MOST COLUMN FOR WATER HEIGHTS 648.5 (CREST OF
EMERGENCY SPILLWAY) TO 649.5 (HIGH WATER LEVEL FROM DESIGN MAXIMUM STORM) AND INCREMENTS IN BETWEEN. THE
EMERGENCY SPILLWAY IS A 2' DIAMETER CULVERT.

Pond WL, ft.	head H / D	Pipe Entrance		Outlet Pipe		Spillway Q, cfs
		weir Qw, cfs	orifice Qo, cfs	inlet control Qc, cfs	outlet control Qo, cfs	
648.5	0.0	0.0	0.0	0.0	648.5	0.0
648.7	0.1	0.2	0.2	0.2	648.7	0.2
648.9	0.2	0.7	0.7	0.7	648.9	0.7
649.1	0.3	1.5	1.5	1.5	649.1	1.5
649.3	0.4	2.6	2.6	2.6	649.3	2.6
649.5	0.5	4.0	4.0	4.0	649.5	4.0

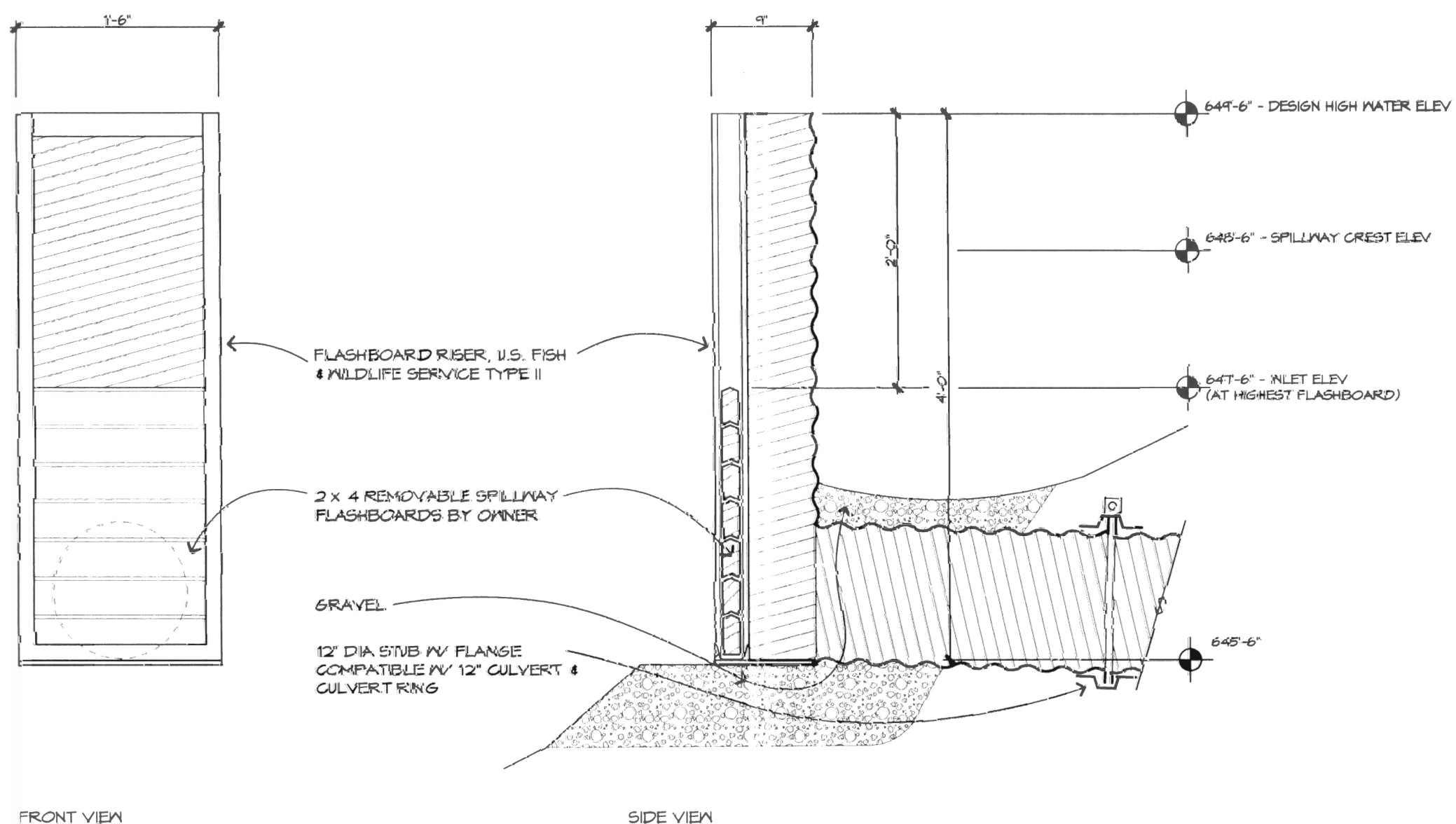
(SOURCE OF "HYDRAULIC COMPUTATIONS FOR OPEN SPILLWAYS" SPREAD SHEET: WASHINGTON STATE DAM SAFETY OFFICE)

OVER ESTIMATED PEAK RUNOFF
RATE FOR BASIN #1 AND #2



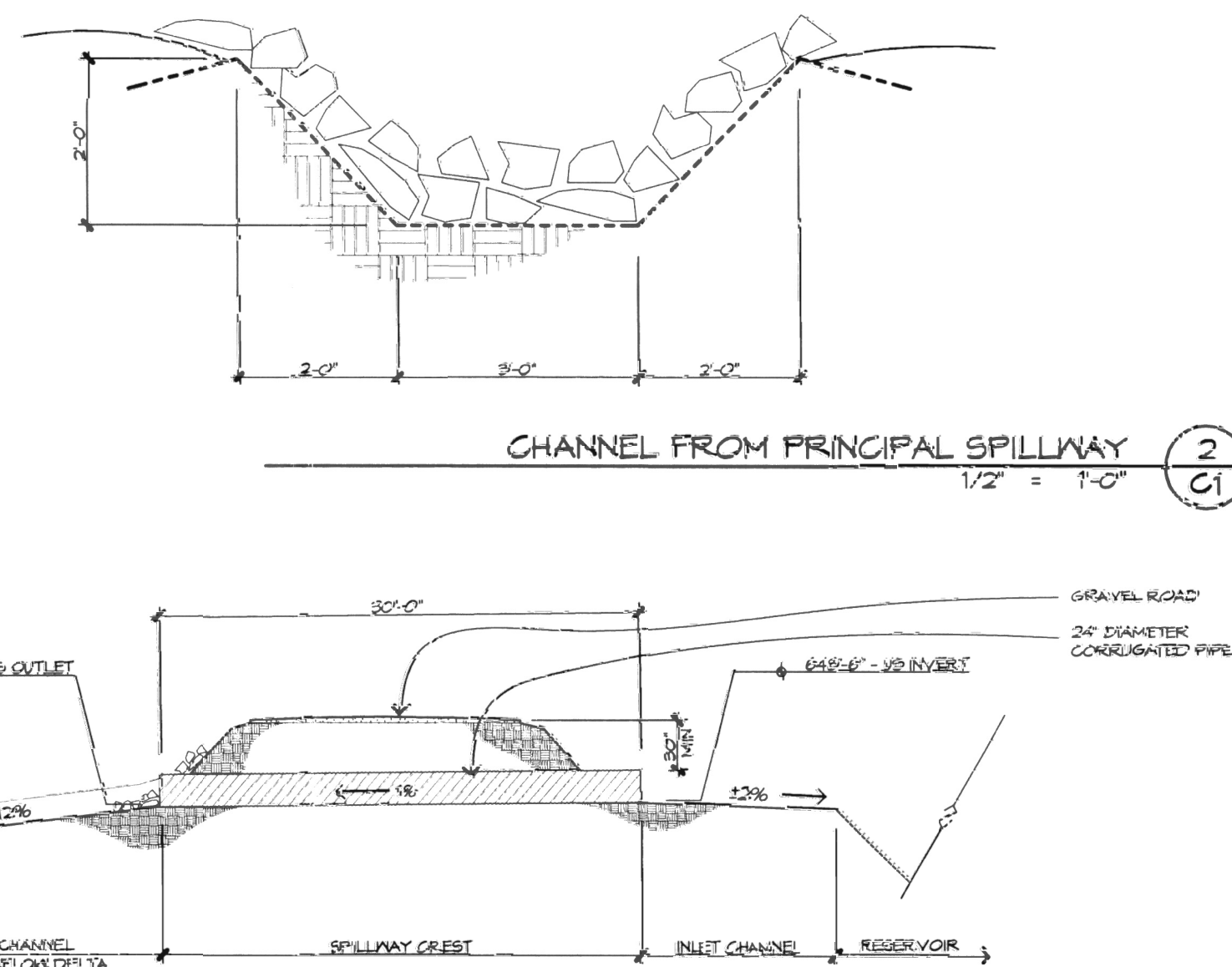
LOCATION AND SOURCE NOTES

- 1 RESERVOIR: TO HOLD RUNOFF AND SUPPLEMENTED BY PROPOSED WELL
- 2 DRAINAGE BASIN #1 - 3.5 ACRES (SOURCE OF RUNOFF)
- 3 DRAINAGE BASIN #2 - 6.5 ACRES (SOURCE OF RUNOFF)
- 4 PASTURE - 4.3 ACRES: STORED WATER WILL BE USED TO IRRIGATE
- 5 LINED DITCH TO CONVEY RUNOFF TO POND
- 6 PIPE TO CONVEY WATER FROM POND TO IRRIGATION SYSTEM IN PASTURE
- 7 EMBANKMENT DAM
- 8 EMERGENCY OVERFLOW DELTA
- 9 RESIDENCE
- 10 PROPOSED WELL IN PUMP HOUSE
- 11 EXISTING DOMESTIC WELL
- 12 BOUNDARY OF BOTH TAXLOT 3100 AND QUARTER-QUARTER SESE
- 13 RUNOFF BYPASS CHANNEL FOR EXCESS RUNOFF TO FLOW PAST POND IF REQUIRED
- 14 30' ACCESS EASEMENT

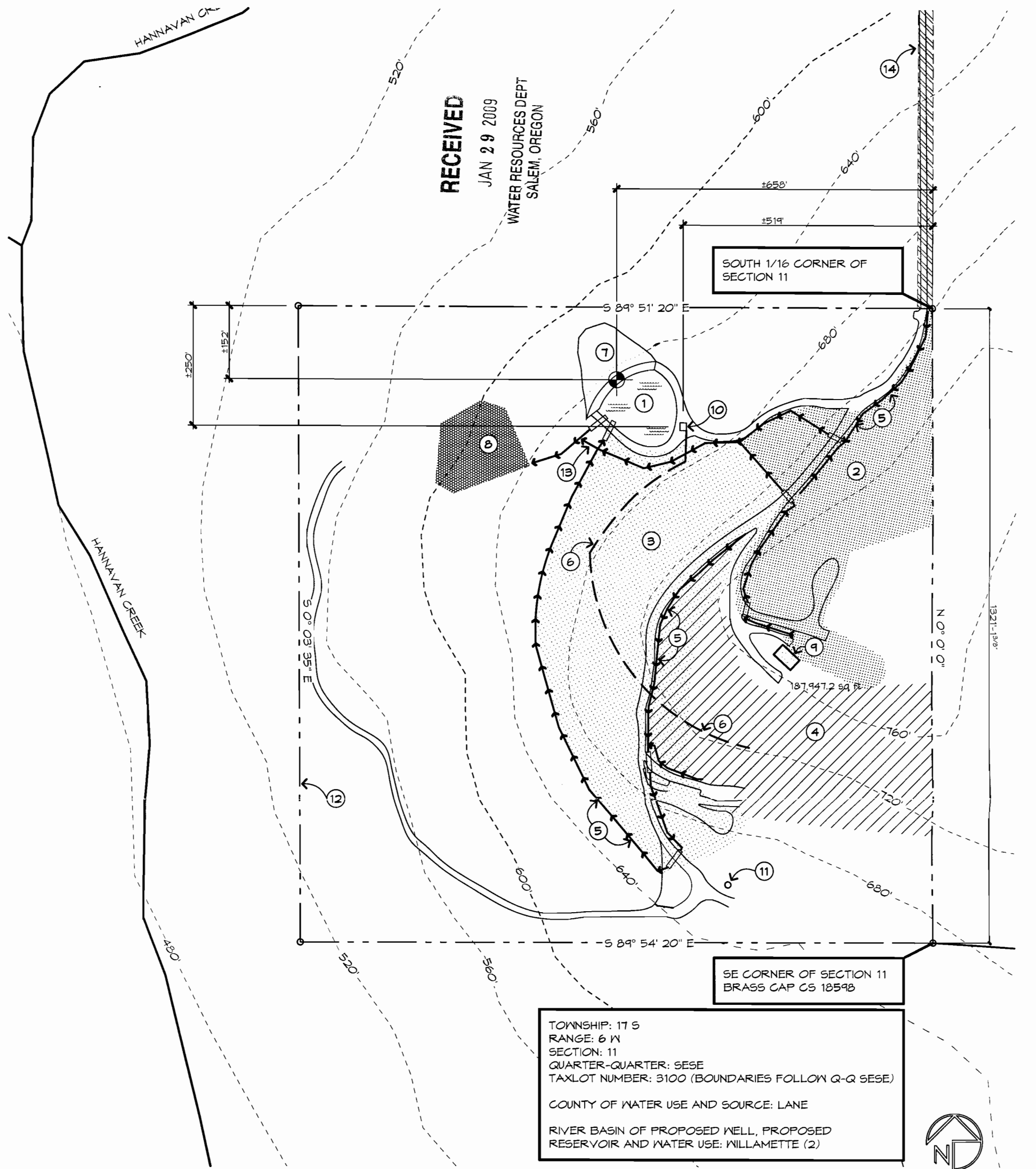


FLASHBOARD RISER - PRINCIPAL SPILLWAY

R-873394



EMERGENCY SPILLWAY SECTION



TOWNSHIP: 17 S
RANGE: 6 W
SECTION: 11
QUARTER-QUARTER: SESE
TAXLOT NUMBER: 3100 (BOUNDARIES FOLLOW Q-Q SESE)

COUNTY OF WATER USE AND SOURCE: LANE

RIVER BASIN OF PROPOSED WELL, PROPOSED
RESERVOIR AND WATER USE: WILLAMETTE (2)

LOCATION AND SOURCE MAP

1" = 200'

LOCATION AND SOURCE NOTES

- ① RESERVOIR: TO HOLD RUNOFF AND SUPPLEMENTED BY PROPOSED WELL

② DRAINAGE BASIN #1 - 3.5 ACRES (SOURCE OF RUNOFF)

③ DRAINAGE BASIN #2 - 6.5 ACRES (SOURCE OF RUNOFF)

④ PASTURE - 4.3 ACRES: STORED WATER WILL BE USED TO IRRIGATE

⑤ LINED DITCH TO CONVEY RUNOFF TO POND

⑥ PIPE TO CONVEY WATER FROM POND TO IRRIGATION SYSTEM IN PASTURE

⑦ EMBANKMENT DAM
- ⑧ EMERGENCY OVERFLOW DELTA

⑨ RESIDENCE

⑩ PROPOSED WELL IN PUMP HOUSE

⑪ EXISTING DOMESTIC WELL

⑫ BOUNDARY OF BOTH TAXLOT 3100 AND QUARTER-QUARTER SESE

⑬ RUNOFF BYPASS CHANNEL FOR EXCESS RUNOFF TO FLOW PAST POND IF REQUIRED

⑭ 30' ACCESS EASEMENT

LONG HAUL TIMBER & CATTLE LLC

DEEP END POND

24610 TRILLIUM LANE; ELMIRA, OR 97437

ERIC
TALL
ARCHITECTS
INC

116 HIGHWAY 99N • EUGENE, OR
ph (541) 688-5594 • fx (541) 688-0530
www.ericstallarchitects.com

Application

PUBLISHED Jan. 12, 2009

REVISED: DATE:

PROJECT
0800.5

DRAWN: RC