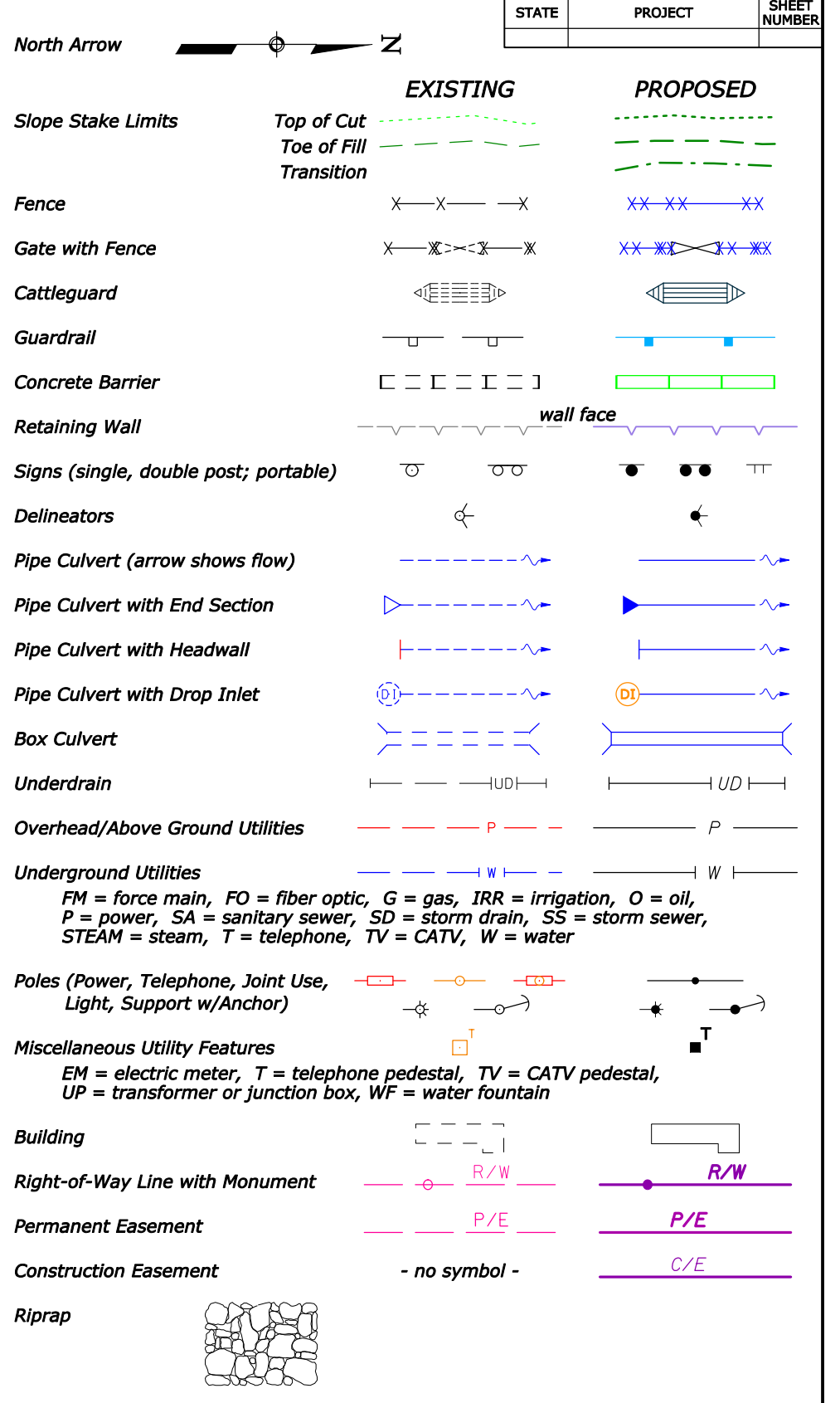
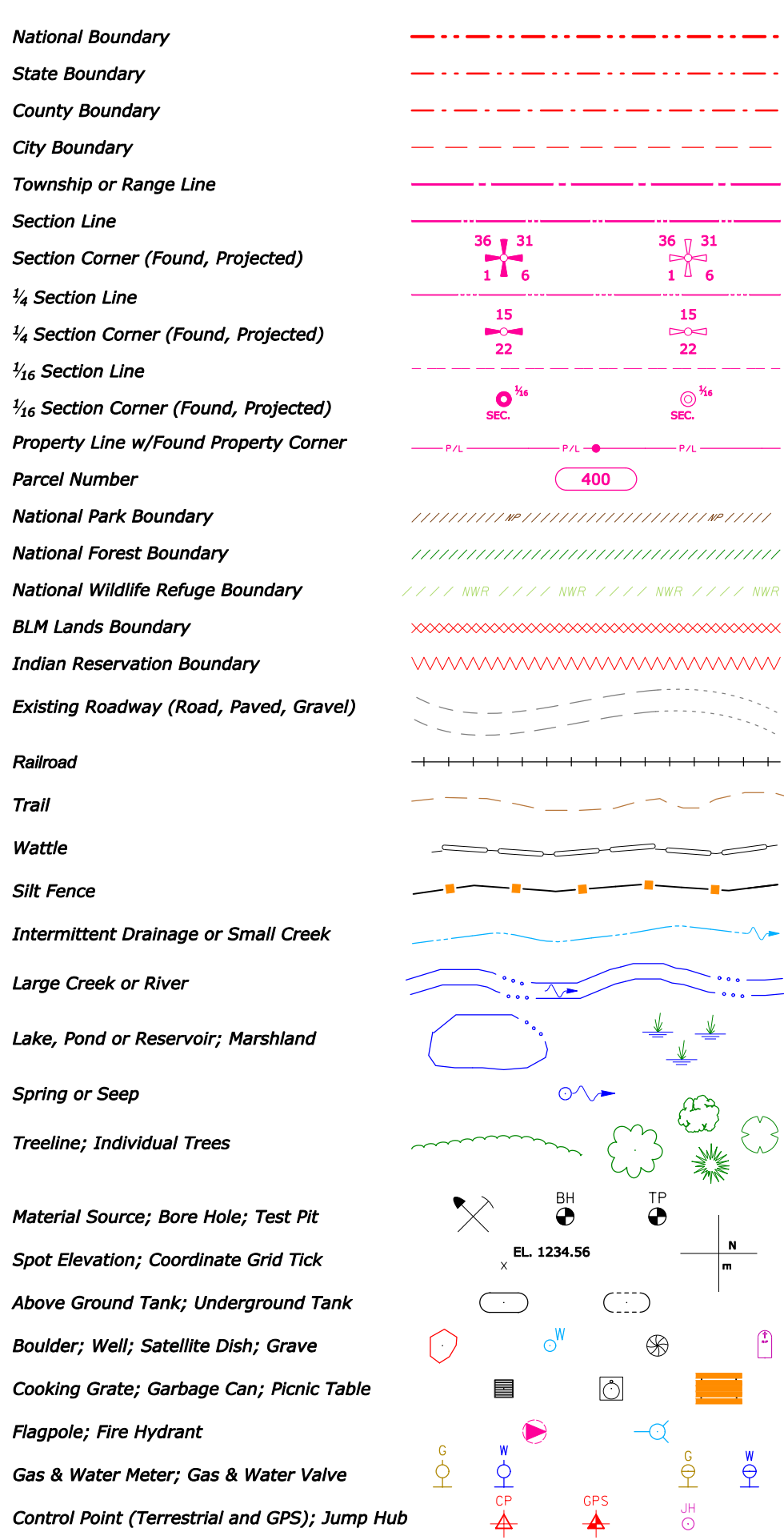


Δ	total central angle	M.L.	main line
Δc	curve central angle	M.P.	mile post
\emptyset	diameter	matl.	material
θ_s	spiral central angle	max.	maximum
abut.	abutment	MGAL	thousand gallon
ADT	average daily traffic	min.	minimum
AH	ahead	mon.	monument
appr.	approach	N	north
BK	back	NC	normal crown
BM	bench mark	o. c.	on center
BP	balance point	o. to o.	out to out
br.	bridge	OD	outside diameter
brg.	bearing	OG	original ground
cc or c. to c.	center to center	PC	point of curve
ξ	centerline	PCC	point of compound curve
clr.	clear	PCS	point of curve to spiral
CMP	corrugated metal pipe	PI	point of intersection
col.	column	pl.	plate
conc.	concrete	POC	point on curve
conn.	connection	POS	point on spiral
constr. jt.	construction joint	POT	point on tangent
cont.	continuous	PS	point of tangent to spiral
CS	point of curve to spiral	PSC	point of spiral to curve
ctrs.	centers	PST	point of spiral to tangent
CUFT	cubic foot (feet)	PT	point of tangent
culv.	culvert	pvmnt.	pavement
CUYD	cubic yard(s)	R	radius
D	diameter	R.	range
DHV	design hourly volume	R/W	right-of-way
dia.	diameter	rdwy.	roadway
diag.	diagonal	reinf.	reinforcement
diaph.	diaphragm	reqd.	required
dist.	distance	rt. or RT	right
drwg(s).	drawing(s)	rte.	route
E	east	S	south
e	superelevation rate	SADT	seasonal average daily traffic
El. 94.16 ft	elevation with number	SC	point of spiral to curve
elev.	elevation	sec.	section
emb.	embankment	shldr.	shoulder
EP	edge of pavement	SLRY	slurry unit
EQ or eq.	equation	spa.	spacing, spaces or spaced
ER	edge of road	SQFT	square foot
EW	edge of water	SQYD	square yard
exc.	excavation	SRS	point of spiral to reverse spiral
exp. jt.	expansion joint	SS	point of spiral to spiral (no curve)
fin.	finish	ST	point of spiral to tangent
flg.	flange	STA, Sta.	station
ft2	square foot	std.	standard
ft3	cubic foot (feet)	stgr.	stringer
ftg.	footing	stiff.	stiffener
ga.	gage (gauge)	struc.	structural
galv.	galvanized	STS	point of spiral to tangent spiral
hdwl.	headwall	sym.	symmetrical
hex.	hexagon	T	tangent distance
HW	high water	T.	township
ID	inside diameter	TBM	temporary bench mark
jt.	joint	thd.	thread
L	length of curve	TS	point of tangent to spiral
lam.	lamination	Ts	tangent distance (spiraled curve)
lat.	latitude	typ.	typical
LNFT	linear foot (feet)	V	design speed
long.	longitudinal	vph	vehicles per hour
LPSM	lump sum	VPI	vertical point of intersection
Ls	length of spiral	W	west
lt. or LT	left	yd2	square yard
LW	low water	yd3	cubic yard(s)

PC	point of curve	National Boundary	-----
PCC	point of compound curve	State Boundary	-----
PCS	point of curve to spiral	County Boundary	-----
PI	point of intersection	City Boundary	-----
pl.	plate	Township or Range Line	-----
POC	point on curve	Section Line	-----
POS	point on spiral	Section Corner (Found, Projected)	
POT	point on tangent	1/4 Section Line	
PS	point of tangent to spiral	1/4 Section Corner (Found, Projected)	
PSC	point of spiral to curve	1/16 Section Line	
PST	point of spiral to tangent	1/16 Section Corner (Found, Projected)	
PT	point of tangent	Property Line w/Found Property Corner	
pvmnt.	pavement	Parcel Number	
R	radius	National Park Boundary	
R.	range	National Forest Boundary	
R/W	right-of-way	National Wildlife Refuge Boundary	
rdwy.	roadway	BLM Lands Boundary	
reinf.	reinforcement	Indian Reservation Boundary	
reqd.	required	Existing Roadway (Road, Paved, Gravel)	
rt. or RT	right	Railroad	
rte.	route	Trail	
S	south	Wattle	
SADT	seasonal average daily traffic	Silt Fence	
SC	point of spiral to curve	Intermittent Drainage or Small Creek	
sec.	section	Large Creek or River	
shldr.	shoulder	Lake, Pond or Reservoir; Marshland	
SLRY	slurry unit	Spring or Seep	
spa.	spacing, spaces or spaced	Treeline; Individual Trees	
SQFT	square foot	Material Source; Bore Hole; Test Pit	
SQYD	square yard	Spot Elevation; Coordinate Grid Tick	
SRS	point of spiral to reverse spiral	Above Ground Tank; Underground Tank	
SS	point of spiral to spiral (no curve)	Boulder; Well; Satellite Dish; Grave	
ST	point of spiral to tangent	Cooking Grate; Garbage Can; Picnic Table	
STA, Sta.	station	Flagpole; Fire Hydrant	
std.	standard	Gas & Water Meter; Gas & Water Valve	
stgr.	stringer	Control Point (Terrestrial and GPS); Jump Hub	
stiff.	stiffener		
struc.	structural		
STS	point of spiral to tangent spiral		
sym.	symmetrical		
T	tangent distance		
T.	township		
TBM	temporary bench mark		
thd.	thread		
TS	point of tangent to spiral		
Ts	tangent distance (spiraled curve)		
typ.	typical		
V	design speed		
vph	vehicles per hour		
VPI	vertical point of intersection		
W	west		
yd2	square yard		
yd3	cubic yard(s)		



NOTE:

1. Other symbols used in the plans will be shown in a legend on the appropriate plan sheet.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

**PLAN SYMBOLS
 AND ABBREVIATIONS**

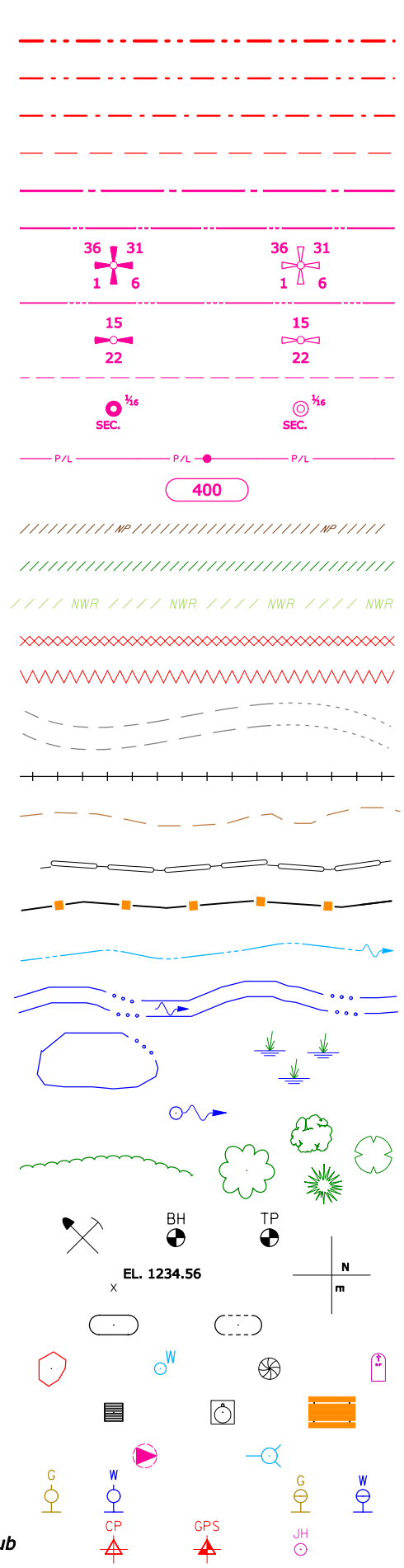
DETAIL APPROVED FOR USE 11/2001
 REVISSED: 9/2005 1/2007 10/2009

DETAIL
 W101-1

Δ	total central angle	M.L.	main line
Δc	curve central angle	M.P.	mile post
\emptyset	diameter	m2	square meter
θs	spiral central angle	m3	cubic meter
abut.	abutment	matl.	material
ADT	average daily traffic	max.	maximum
AH	ahead	min.	minimum
appr.	approach	mon.	monument
BK	back	N	north
BM	bench mark	NC	normal crown
BP	balance point	o. c.	on center
br.	bridge	o. to o.	out to out
brg.	bearing	OD	outside diameter
cc or c. to c.	center to center	OG	original ground
ϵ	centerline	PC	point of curve
clr.	clear	PCC	point of compound curve
CMP	corrugated metal pipe	PCS	point of curve to spiral
col.	column	PI	point of intersection
conc.	concrete	pl.	plate
conn.	connection	POC	point on curve
constr. jt.	construction joint	POS	point on spiral
cont.	continuous	POT	point on tangent
CS	point of curve to spiral	PS	point of tangent to spiral
ctrs.	centers	PSC	point of spiral to curve
culv.	culvert	PST	point of spiral to tangent
D	diameter	PT	point of tangent
DHV	design hourly volume	pvmt.	pavement
dia.	diameter	R	radius
diag.	diagonal	R.	range
diaph.	diaphragm	R/W	right-of-way
dist.	distance	rdwy.	roadway
drwg(s).	drawing(s)	reinf.	reinforcement
E	east	reqd.	required
e	superelevation rate	rt. or RT	right
El. 94.061 m	elevation with number	rte.	route
elev.	elevation	S	south
emb.	embankment	SADT	seasonal average daily traffic
EP	edge of pavement	SC	point of spiral to curve
EQ or eq.	equation	sec.	section
ER	edge of road	shldr.	shoulder
EW	edge of water	slyr	slurry unit
exc.	excavation	spa.	spacing, spaces or spaced
exp. jt.	expansion joint	SRS	point of spiral to reverse spiral
fin.	finish	SS	point of spiral to spiral (no curve)
flg.	flange	ST	point of spiral to tangent
ftg.	footing	Sta.	station
ga.	gage (gauge)	std.	standard
galv.	galvanized	stgr.	stringer
hdwl.	headwall	stiff.	stiffener
hex.	hexagon	struc.	structural
HW	high water	STS	point of spiral to tangent spiral
ID	inside diameter	sym.	symmetrical
jt.	joint	T	tangent distance
K.P.	kilometer post	T.	township
L	length of curve	TBM	temporary bench mark
lam.	lamination	thd.	thread
lat.	latitude	thd.	thread
long.	longitudinal	thd.	thread
LPSM	lump sum	TS	point of tangent to spiral
Ls	length of spiral	Ts	tangent distance (spiraled curve)
lt. or LT	left	typ.	typical
LW	low water	V	design speed
		vph	vehicles per hour
		VPI	vertical point of intersection
		W	west

National Boundary	-----
State Boundary	-----
County Boundary	-----
City Boundary	-----
Township or Range Line	-----
Section Line	-----
Section Corner (Found, Projected)	
1/4 Section Line	-----
1/4 Section Corner (Found, Projected)	
1/16 Section Line	-----
1/16 Section Corner (Found, Projected)	
Property Line w/Found Property Corner	
Parcel Number	
National Park Boundary	////// NP ////
National Forest Boundary	////// NWR ////
National Wildlife Refuge Boundary	////// NWR ////
BLM Lands Boundary	XXXXXX
Indian Reservation Boundary	~~~~~
Existing Roadway (Road, Paved, Gravel)	-----
Railroad	-----
Trail	-----
Wattle	-----
Silt Fence	-----
Intermittent Drainage or Small Creek	-----
Large Creek or River	-----
Lake, Pond or Reservoir; Marshland	-----
Spring or Seep	-----
Treeline; Individual Trees	-----
Material Source; Bore Hole; Test Pit	-----
Spot Elevation; Coordinate Grid Tick	-----
Above Ground Tank; Underground Tank	-----
Boulder; Well; Satellite Dish; Grave	-----
Cooking Grate; Garbage Can; Picnic Table	-----
Flagpole; Fire Hydrant	-----
Gas & Water Meter; Gas & Water Valve	-----
Control Point (Terrestrial and GPS); Jump Hub	-----

National Boundary	-----
State Boundary	-----
County Boundary	-----
City Boundary	-----
Township or Range Line	-----
Section Line	-----
Section Corner (Found, Projected)	
1/4 Section Line	-----
1/4 Section Corner (Found, Projected)	
1/16 Section Line	-----
1/16 Section Corner (Found, Projected)	
Property Line w/Found Property Corner	
Parcel Number	
National Park Boundary	////// NP ////
National Forest Boundary	////// NWR ////
National Wildlife Refuge Boundary	////// NWR ////
BLM Lands Boundary	XXXXXX
Indian Reservation Boundary	~~~~~
Existing Roadway (Road, Paved, Gravel)	-----
Railroad	-----
Trail	-----
Wattle	-----
Silt Fence	-----
Intermittent Drainage or Small Creek	-----
Large Creek or River	-----
Lake, Pond or Reservoir; Marshland	-----
Spring or Seep	-----
Treeline; Individual Trees	-----
Material Source; Bore Hole; Test Pit	-----
Spot Elevation; Coordinate Grid Tick	-----
Above Ground Tank; Underground Tank	-----
Boulder; Well; Satellite Dish; Grave	-----
Cooking Grate; Garbage Can; Picnic Table	-----
Flagpole; Fire Hydrant	-----
Gas & Water Meter; Gas & Water Valve	-----
Control Point (Terrestrial and GPS); Jump Hub	-----



North Arrow	
Slope Stake Limits	
Fence	
Gate with Fence	
Cattleguard	
Guardrail	
Concrete Barrier	
Retaining Wall	
Signs (single, double post; portable)	
Delineators	
Pipe Culvert (arrow shows flow)	
Pipe Culvert with End Section	
Pipe Culvert with Headwall	
Pipe Culvert with Drop Inlet	
Box Culvert	
Underdrain	
Overhead/Above Ground Utilities	
Underground Utilities	
<p>FM = force main, FO = fiber optic, G = gas, IRR = irrigation, O = oil, P = power, SA = sanitary sewer, SD = storm drain, SS = storm sewer, STEAM = steam, T = telephone, TV = CATV, W = water</p>	
Poles (Power, Telephone, Joint Use, Light, Support w/Anchor)	
Miscellaneous Utility Features	
<p>EM = electric meter, T = telephone pedestal, TV = CATV pedestal, UP = transformer or junction box, WF = water fountain</p>	
Building	
Right-of-Way Line with Monument	
Permanent Easement	
Construction Easement	
Riprap	

NOTE:

1. Other symbols used in the plans will be shown in a legend on the appropriate plan sheet.
2. Dimensions in this plan set are in millimeters unless otherwise noted.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

METRIC DETAIL

**PLAN SYMBOLS
AND ABBREVIATIONS**

DETAIL APPROVED FOR USE 11/2001	DETAIL
REVISED: 9/2005 1/2007 10/2009	WM101-1

27-Jun-2007 12:32 PM

F:\StanDraw\Western\wr.01.1A.dgn [US Customary]

Δ	total central angle
Δc	curve central angle
\emptyset	diameter
$\emptyset s$	spiral central angle
abut.	abutment
ADT	average daily traffic
AH	ahead
appr.	approach
BK	back
BM	bench mark
BP	balance point
br.	bridge
brg.	bearing
cc or c. to c.	center to center
£	centerline
clr.	clear
CMP	corrugated metal pipe
col.	column
conc.	concrete
conn.	connection
constr. jt.	construction joint
cont.	continuous
CS	point of curve to spiral
ctrs.	centers
CUFT	cubic foot (feet)
culv.	culvert
CUYD	cubic yard(s)
D	diameter
DHV	design hourly volume
dia.	diameter
diag.	diagonal
diaph.	diaphragm
dist.	distance
drwg(s).	drawing(s)
E	east
e	superelevation rate
El. 94.16 ft	elevation with number
elev.	elevation
emb.	embankment
EP	edge of pavement
EQ or eq.	equation
ER	edge of road
EW	edge of water
exc.	excavation
exp. jt.	expansion joint
fin.	finish
flg.	flange
ft ²	square foot
ft ³	cubic foot (feet)
ftg.	footing
ga.	gage (gauge)
galv.	galvanized
hdwl.	headwall
hex.	hexagon
HW	high water
ID	inside diameter
jt.	joint
L	length of curve
lam.	lamination
lat.	latitude
LNFT	linear foot (feet)
long.	longitudinal
LPSM	lump sum
Ls	length of spiral
lt. or LT	left
LW	low water

M.L.	main line
M.P.	mile post
matl.	material
max.	maximum
MGAL	thousand gallon
min.	minimum
mon.	monument
N	north
NC	normal crown
o. c.	on center
o. to o.	out to out
OD	outside diameter
OG	original ground
PC	point of curve
PCC	point of compound curve
PCS	point of curve to spiral
PI	point of intersection
pl.	plate
POC	point on curve
POS	point on spiral
POT	point on tangent
PS	point of tangent to spiral
PSC	point of spiral to curve
PST	point of spiral to tangent
PT	point of tangent
pvmt.	pavement
R	radius
R.	range
R/W	right-of-way
rdwy.	roadway
reinf.	reinforcement
reqd.	required
rt. or RT	right
rte.	route
S	south
SADT	seasonal average daily traffic
SC	point of spiral to curve
sec.	section
shldr.	shoulder
SLRY	slurry unit
spa.	spacing, spaces or spaced
SQFT	square foot
SQYD	square yard
SRS	point of spiral to reverse spiral
SS	point of spiral to spiral (no curve)
ST	point of spiral to tangent
STA, Sta.	station
std.	standard
str.	stringer
stiff.	stiffener
struc.	structural
STS	point of spiral to tangent spiral
sym.	symmetrical
T	tangent distance
T.	township
TBM	temporary bench mark
thd.	thread
TS	point of tangent to spiral
Ts	tangent distance (spiraled curve)
typ.	typical
V	design speed
vph	vehicles per hour
VPI	vertical point of intersection
W	west
yd ²	square yard
yd ³	cubic yard(s)

NATIONAL BOUNDARY	
STATE BOUNDARY	
COUNTY BOUNDARY	
CITY BOUNDARY	
TOWNSHIP or RANGE LINE	
SECTION LINE	
1/4 SECTION LINE	
1/16 SECTION LINE	
NATIONAL PARK or FOREST BOUNDARY	
PROPERTY LINE	
RIGHT-OF-WAY LINE	
RIGHT-OF-WAY LINE with MONUMENT	
EASEMENT (Permanent; Non-Permanent)	
SLOPE STAKE	
ROADWAY, EXISTING	
RAILROAD	
WATTLE	
SILT FENCE	
TRAIL	
INTERMITTENT DRAINAGE and SMALL CREEK	
LARGE CREEK/RIVER	
LAKE, POND or RESERVOIR; MARSHLAND	
SPRING	
TREELINE; TREE	
MATERIAL SOURCE	
SECTION CORNER	
1/4 SECTION CORNER	
1/16 SECTION or PROPERTY CORNER	
PROPERTY CORNER	
PARCEL NUMBER	

NOTE:
1. Other symbols used in the plans will be shown in a legend on the appropriate plan sheet.

NORTH ARROW	
FENCE	
GATE with FENCE	
CATTLEGUARD	
GUARDRAIL	
SIGNS	
RETAINING WALL	
POWER POLE UTILITIES	
UNDERGROUND UTILITIES	
SUPPORT POLE with ANCHOR	
TELEPHONE BOOTH or PEDESTAL	
STREET LIGHT	
BRIDGE	
PIPE CULVERT (arrow shows flow)	
PIPE CULVERT with END SECTION	
PIPE CULVERT with HEADWALL	
BOX CULVERT	
CULVERT with DROP INLET	
UNDERDRAIN	
CONTROL POINT	
SURVEY MONUMENT	
HUB & TACK	
SPOT ELEVATION	
COORDINATE GRID TICK	
BUILDING	
BORING LOCATION	
RIPRAP	

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL
PLAN SYMBOLS AND ABBREVIATIONS

DETAIL APPROVED FOR USE 11/2001
REVISED: 9/2005 1/2007 6/2007

DETAIL
W101-1A

Δ	total central angle
Δc	curve central angle
\emptyset	diameter
θ_s	spiral central angle
abut.	abutment
ADT	average daily traffic
AH	ahead
appr.	approach
BK	back
BM	bench mark
BP	balance point
br.	bridge
brg.	bearing
cc or c. to c.	center to center
ξ	centerline
clr.	clear
CMP	corrugated metal pipe
col.	column
conc.	concrete
conn.	connection
constr. jt.	construction joint
cont.	continuous
CS	point of curve to spiral
ctrs.	centers
culv.	culvert
D	diameter
DHV	design hourly volume
dia.	diameter
diag.	diagonal
diaph.	diaphragm
dist.	distance
drwg(s).	drawing(s)
E	east
e	superelevation rate
El. 94.061 m	elevation with number
elev.	elevation
emb.	embankment
EP	edge of pavement
EQ or eq.	equation
ER	edge of road
EW	edge of water
exc.	excavation
exp. jt.	expansion joint
fin.	finish
fig.	flange
ftg.	footing
ga.	gage (gauge)
galv.	galvanized
hdwl.	headwall
hex.	hexagon
HW	high water
ID	inside diameter
jt.	joint
K.P.	kilometer post
L	length of curve
lam.	lamination
lat.	latitude
long.	longitudinal
LPSM	lump sum
Ls	length of spiral
lt. or LT	left
LW	low water

M.L.	main line
M.P.	mile post
m2	square meter
m3	cubic meter
matl.	material
max.	maximum
min.	minimum
mon.	monument
N	north
NC	normal crown
o. c.	on center
o. to o.	out to out
OD	outside diameter
OG	original ground
PC	point of curve
PCC	point of compound curve
PCS	point of curve to spiral
PI	point of intersection
pl.	plate
POC	point on curve
POS	point on spiral
POT	point on tangent
PS	point of tangent to spiral
PSC	point of spiral to curve
PST	point of spiral to tangent
PT	point of tangent
pvmt.	pavement
R	radius
R.	range
R/W	right-of-way
rdwy.	roadway
reinf.	reinforcement
reqd.	required
rt. or RT	right
rte.	route
S	south
SADT	seasonal average daily traffic
SC	point of spiral to curve
sec.	section
shldr.	shoulder
slry	slurry unit
spa.	spacing, spaces or spaced
SRS	point of spiral to reverse spiral
SS	point of spiral to spiral (no curve)
ST	point of spiral to tangent
Sta.	station
std.	standard
stgr.	stringer
stiff.	stiffener
struc.	structural
STS	point of spiral to tangent spiral
sym.	symmetrical
T	tangent distance
T.	township
TBM	temporary bench mark
thd.	thread
TS	point of tangent to spiral
Ts	tangent distance (spiraled curve)
typ.	typical
V	design speed
vph	vehicles per hour
VPI	vertical point of intersection
W	west

NATIONAL BOUNDARY	
STATE BOUNDARY	
COUNTY BOUNDARY	
CITY BOUNDARY	
TOWNSHIP or RANGE LINE	
SECTION LINE	
1/4 SECTION LINE	
1/16 SECTION LINE	
NATIONAL PARK or FOREST BOUNDARY	
PROPERTY LINE	
RIGHT-OF-WAY LINE	EXISTING PROPOSED
RIGHT-OF-WAY LINE with MONUMENT	EXISTING PROPOSED
EASEMENT (Permanent; Non-Permanent)	
SLOPE STAKE	TOP OF CUT TOE OF FILL TRANSITION
ROADWAY, EXISTING	
RAILROAD	SINGLE TRACK MULTIPLE TRACK
WATTLE	
SILT FENCE	
TRAIL	
INTERMITTENT DRAINAGE and SMALL CREEK	
LARGE CREEK/RIVER	
LAKE, POND or RESERVOIR; MARSHLAND	
SPRING	
TREELINE; TREE	
MATERIAL SOURCE	
SECTION CORNER	FOUND PROJECTED
1/4 SECTION CORNER	FOUND PROJECTED
1/16 SECTION or PROPERTY CORNER	FOUND PROJECTED
PROPERTY CORNER	FOUND PROJECTED
PARCEL NUMBER	FOUND PROJECTED

NOTE:

- Other symbols used in the plans will be shown in a legend on the appropriate plan sheet.
- Dimensions in this plan set are in millimeters unless otherwise noted.

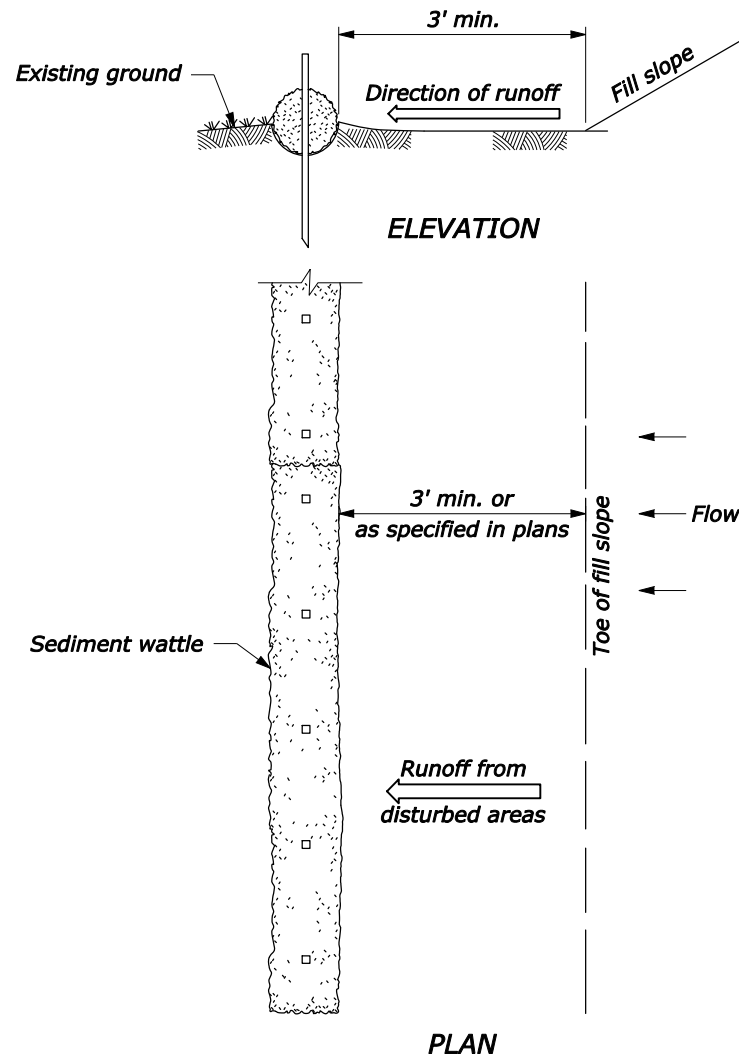
NORTH ARROW	
FENCE	EXISTING PROPOSED
GATE with FENCE	EXISTING PROPOSED
CATTLEGUARD	EXISTING PROPOSED
GUARDRAIL	EXISTING PROPOSED
SIGNS	Post mounted, single Post mounted, double Portable No Symbol
RETAINING WALL	EXISTING PROPOSED wall face
POWER POLE UTILITIES	P=power, T=telephone EXISTING PROPOSED
UNDERGROUND UTILITIES	G=gas, O=oil, P=power, SA=sanitary sewer, SS=storm sewer, T=telephone, W=water EXISTING PROPOSED
SUPPORT POLE with ANCHOR	EXISTING PROPOSED
TELEPHONE BOOTH or PEDESTAL	TB or TP TB or TP
STREET LIGHT	EXISTING PROPOSED
BRIDGE	EXISTING PROPOSED
PIPE CULVERT (arrow shows flow)	EXISTING PROPOSED
PIPE CULVERT with END SECTION	EXISTING PROPOSED
PIPE CULVERT with HEADWALL	EXISTING PROPOSED
BOX CULVERT	EXISTING PROPOSED
CULVERT with DROP INLET	EXISTING PROPOSED
UNDERDRAIN	EXISTING PROPOSED
CONTROL POINT	CP 12345 No Symbol
SURVEY MONUMENT	 No Symbol
HUB & TACK	 No Symbol
SPOT ELEVATION	EL. 1234.56 ft X No Symbol
COORDINATE GRID TICK	 No Symbol
BUILDING	 No Symbol
BORING LOCATION	 No Symbol
RIPRAP	No Symbol

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

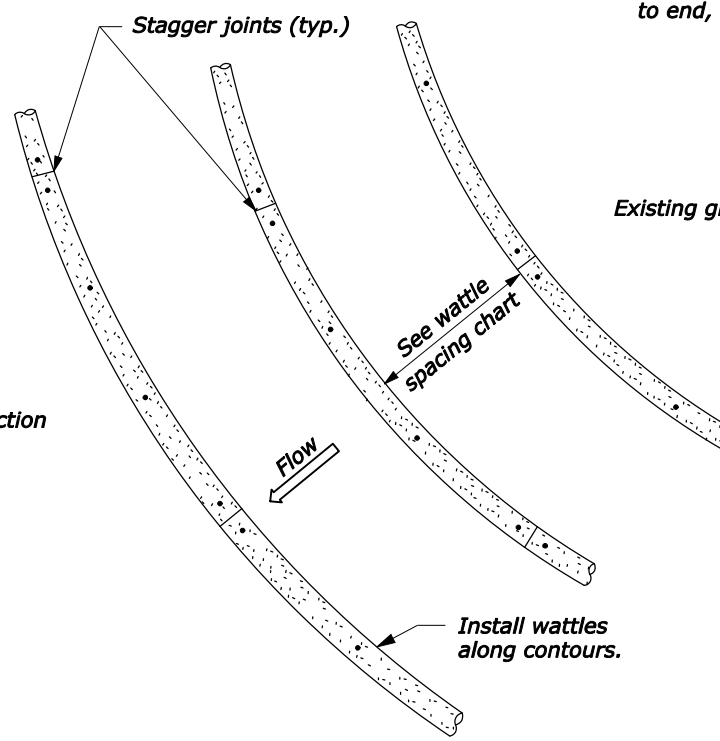
METRIC DETAIL
PLAN SYMBOLS AND ABBREVIATIONS

DETAIL APPROVED FOR USE 11/2001
REVISED: 9/2005 1/2007 6/2007

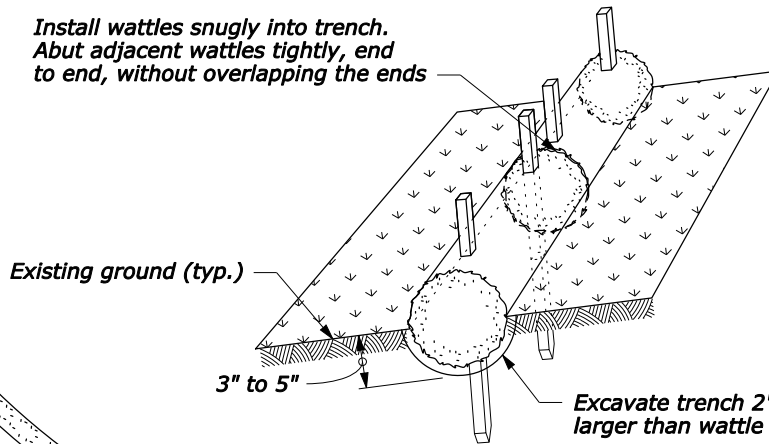
DETAIL
WM101-1A



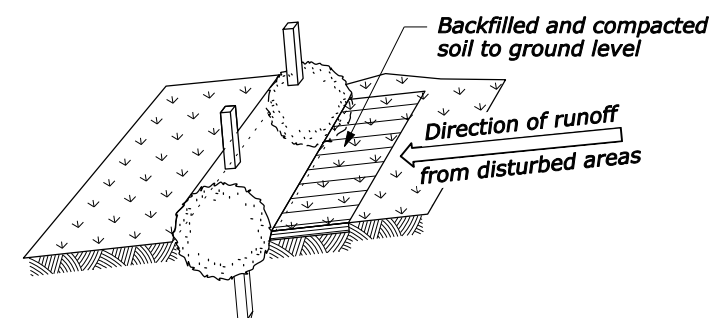
INSTALLATION BEYOND TOE OF SLOPE



INSTALLATION ALONG SLOPES



Step 1: Excavate trench and install wattles



Step 2: Backfill soil against wattles

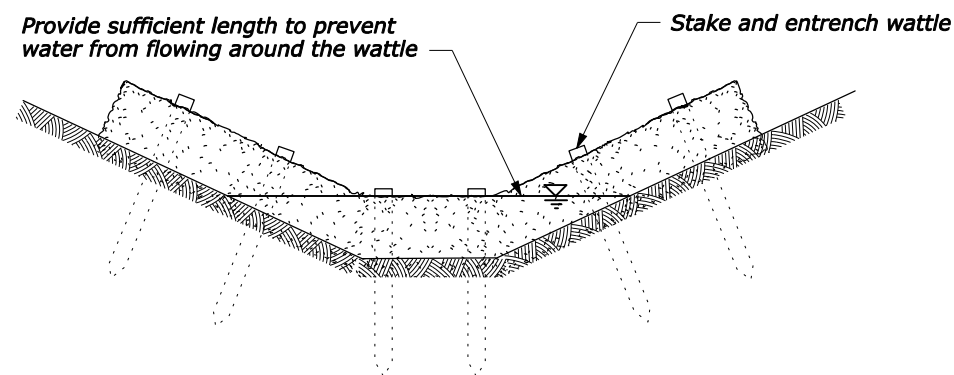
PROPERLY STAKED AND ENTRENCHED WATTLE

NOTE:

1. Drive stakes at each end and at 4' spacing until wattle is secure to slope. Do not crush wattle while staking. Live stakes may be used for permanent installations.
2. Use drainage ditch installation only in low flow conditions.

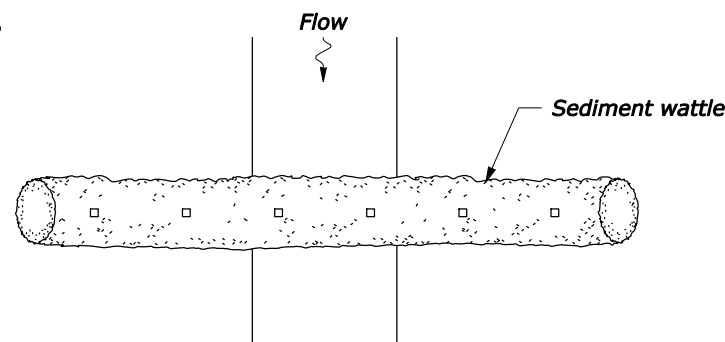
STAKES REQUIRED	
Wattle length (ft)	Stakes required for each wattle
25	8
20	6
12	4

WATTLE SPACING	
Slope	Spacing (ft)
1:4 or flatter	40
1:3	30
1:2	20
1:1	10

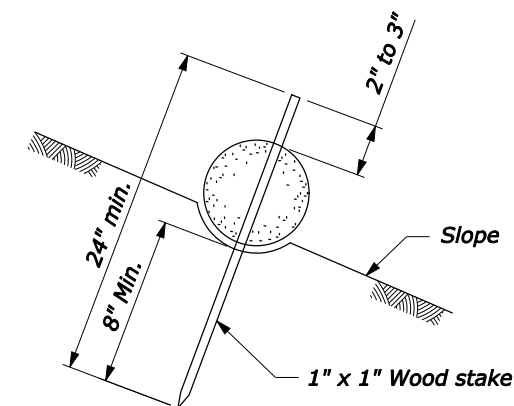


ELEVATION

DRAINAGE DITCH INSTALLATION



PLAN



WATTLE STAKING DETAIL

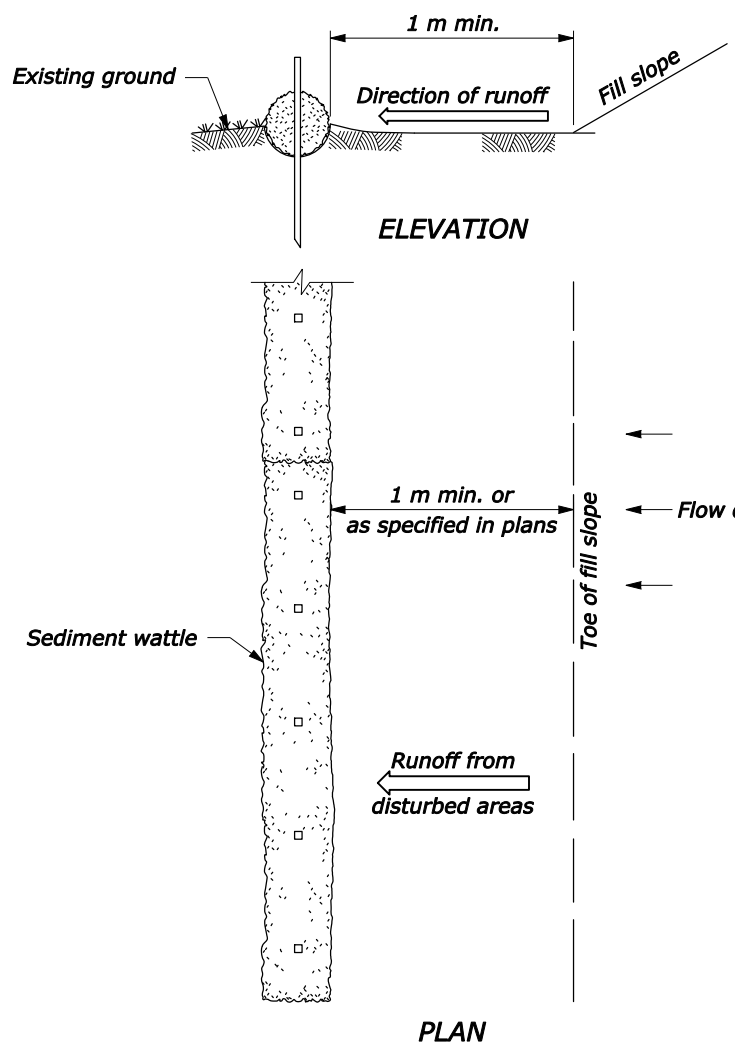
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

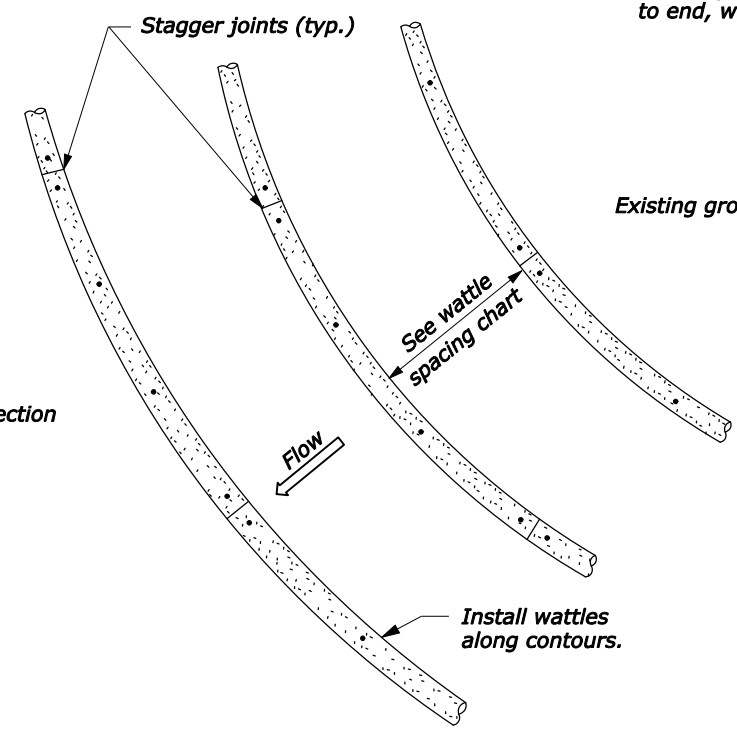
U.S. CUSTOMARY DETAIL

SEDIMENT WATTLE

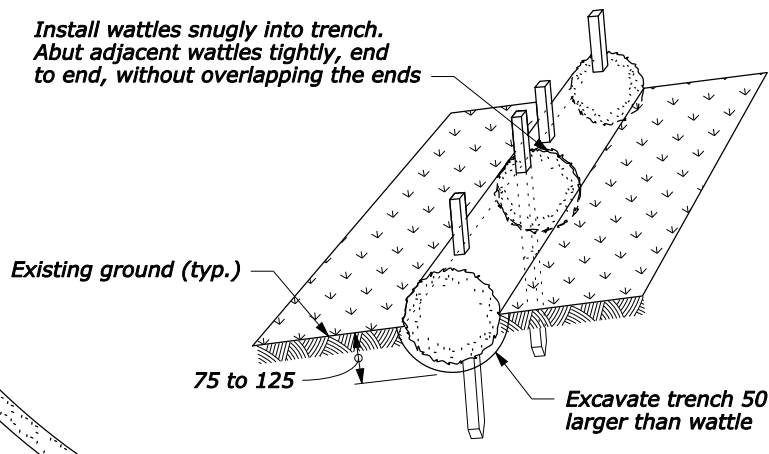
DETAIL APPROVED FOR USE 9/2007	DETAIL
REVISED:	W157-20



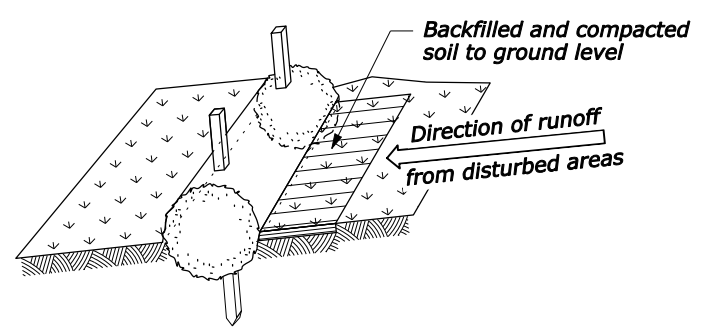
INSTALLATION BEYOND TOE OF SLOPE



INSTALLATION ALONG SLOPES



Step 1: Excavate trench and install wattles



Step 2: Backfill soil against wattles

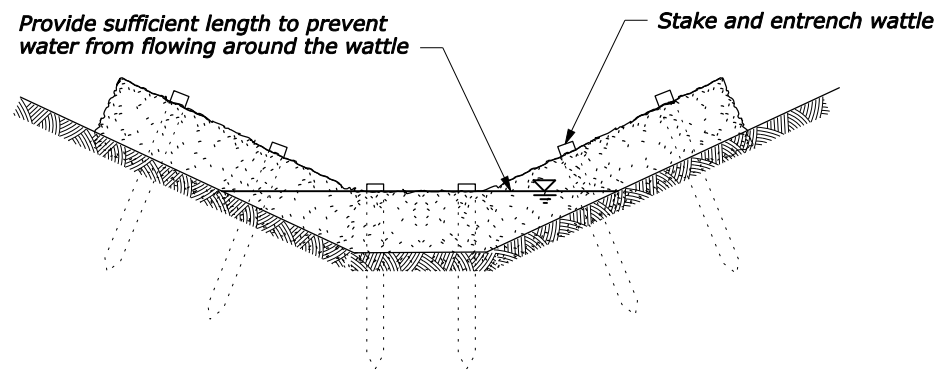
NOTE:

1. Drive stakes at each end and at 1.2 m spacing until wattle is secure to slope. Do not crush wattle while staking. Live stakes may be used for permanent installations.
2. Use drainage ditch installation only in low flow conditions.
3. Dimensions without units are millimeters.

STAKES REQUIRED	
Wattle length (m)	Stakes required for each wattle
7.5	8
6.0	6
3.5	4

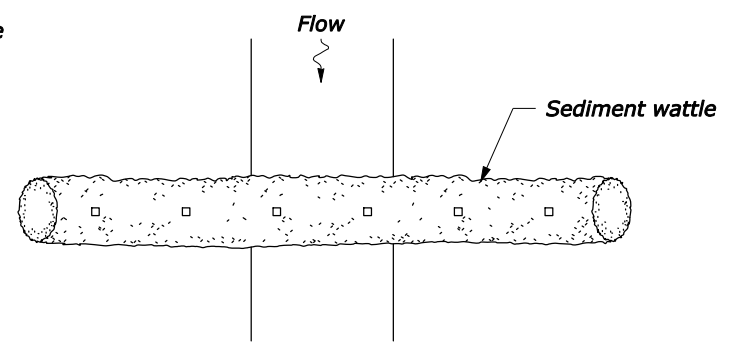
WATTLE SPACING	
Slope	Spacing (m)
1:4 or flatter	12
1:3	9
1:2	6
1:1	3

PROPERLY STAKED AND ENTRENCHED WATTLE

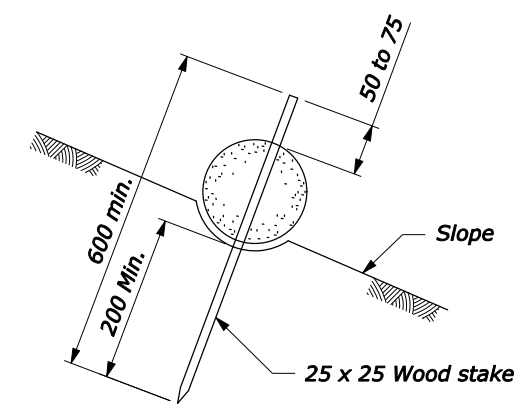


ELEVATION

DRAINAGE DITCH INSTALLATION



PLAN



WATTLE STAKING DETAIL

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

METRIC DETAIL

SEDIMENT WATTLE

DETAIL APPROVED FOR USE 9/2007

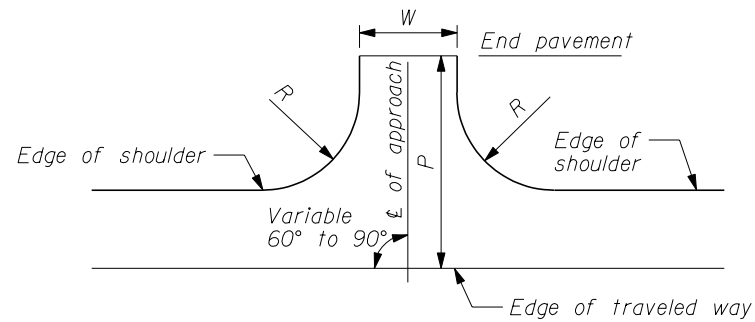
REVISID:

DETAIL
WM157-20

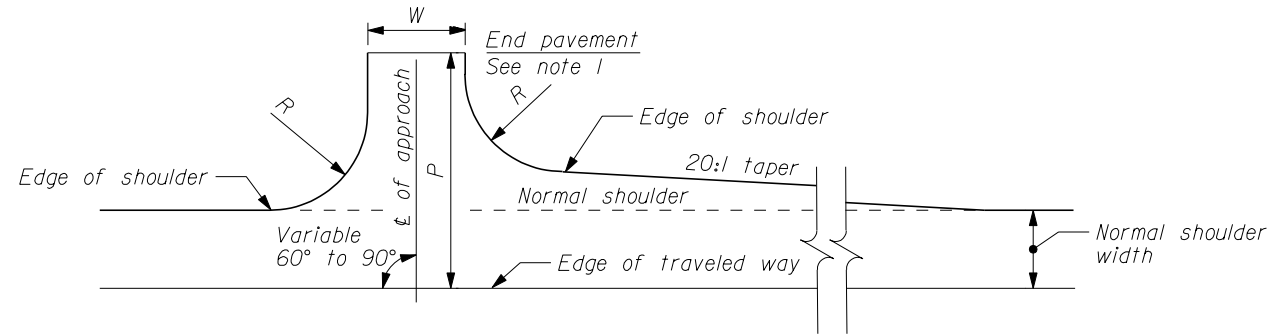
NO SCALE

NOTE:

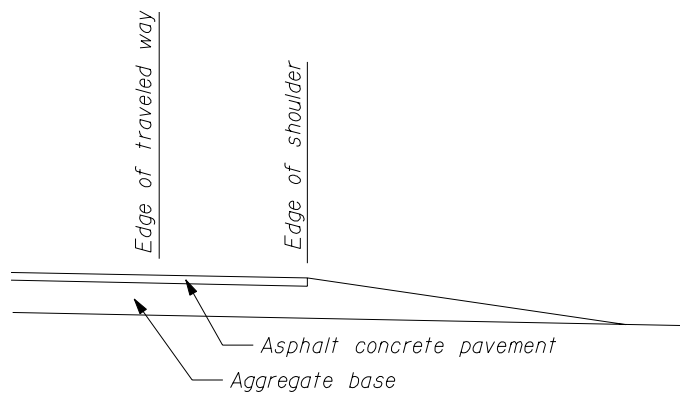
1. Finish Type 3 approaches to public roads (county, state and municipalities) and public or private roads used for commercial purposes with the same pavement structure as shown for the adjacent roadbed.
2. Finish other approaches with untreated base. Provide a wearing surface of the same treatment as shown for the adjacent roadbed, but limit the depth to 1 1/2" maximum.
3. Construct side slope ratio and degree of finish of approaches compatible with adjacent roadway construction.



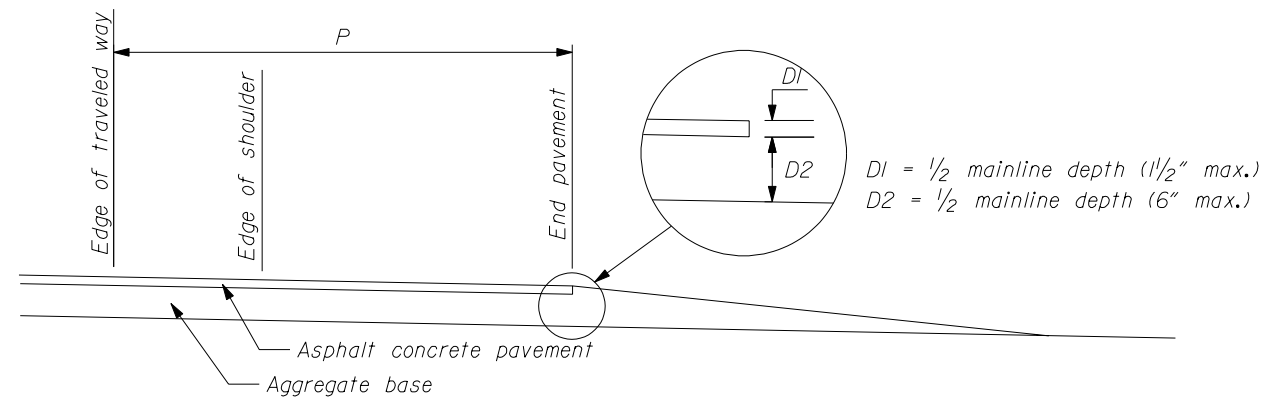
TYPE 1 AND 2



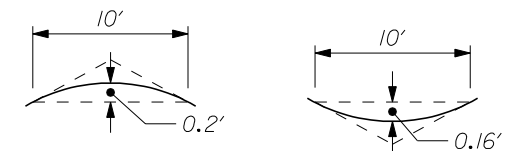
TYPE 3



TYPE 1 APPROACH (UNPAVED)

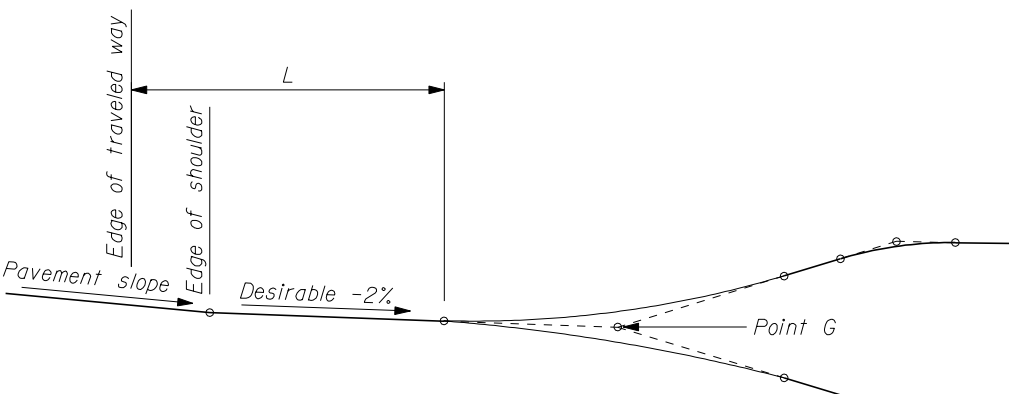


TYPE 2 APPROACHES

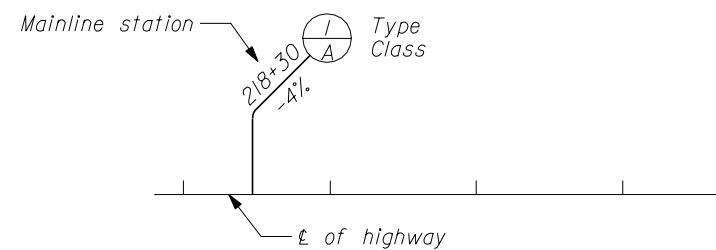


MAXIMUM CREST MAXIMUM SAG

Where approach grades meet without vertical curves, limit the maximum algebraic difference to 8% on crests and 12% on sags.



APPROACH PROFILE



ROAD APPROACH SYMBOL

ROAD APPROACHES					
TYPE	CLASS	W	R	L (min.)	P
		Dimensions in feet			
Single owner use					
1	A	16	16	16	N/A
2 or 3	A	16	16	16	16
2 or 3	B	20	16	16	16
Two-way multiple use					
2 or 3	C	26	16	to R/W	to R/W
2 or 3	D	32	30	to R/W	to R/W
Public road approach					
3	E	32	55	55	55

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

DETAIL

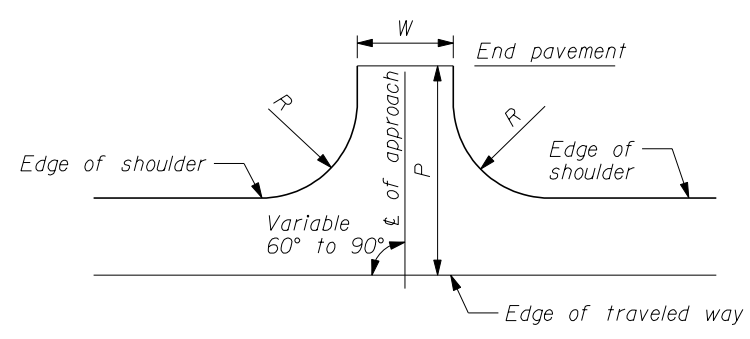
**STANDARD OREGON
ROAD APPROACH**

DETAIL APPROVED FOR USE 12/2002

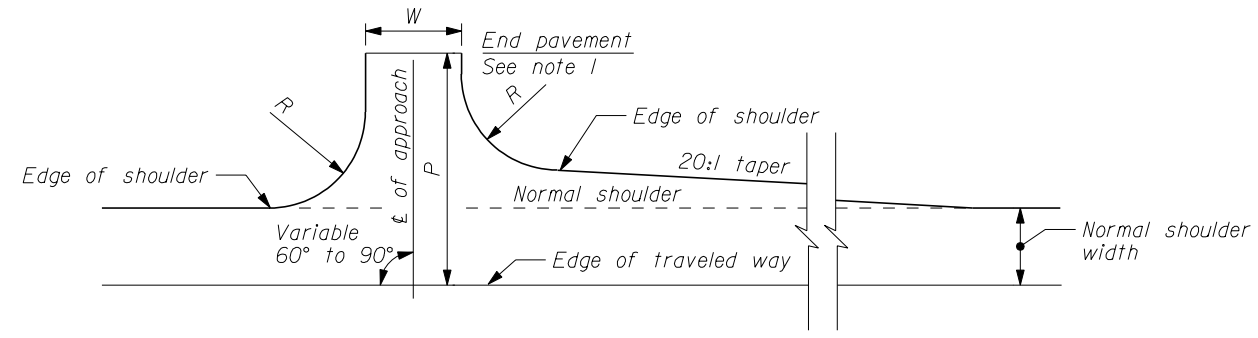
REVISIONS: _____

DETAIL
W200-2

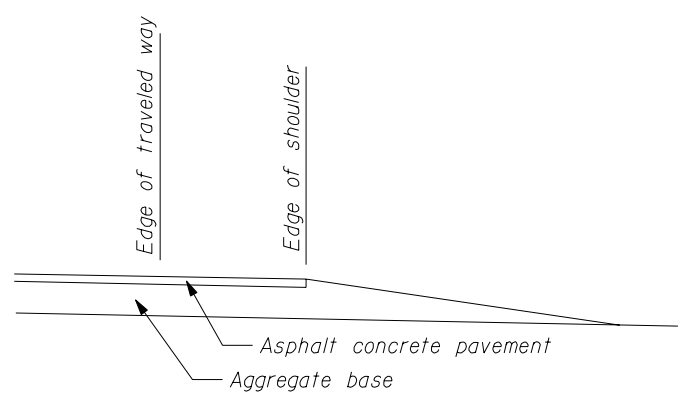
NO SCALE



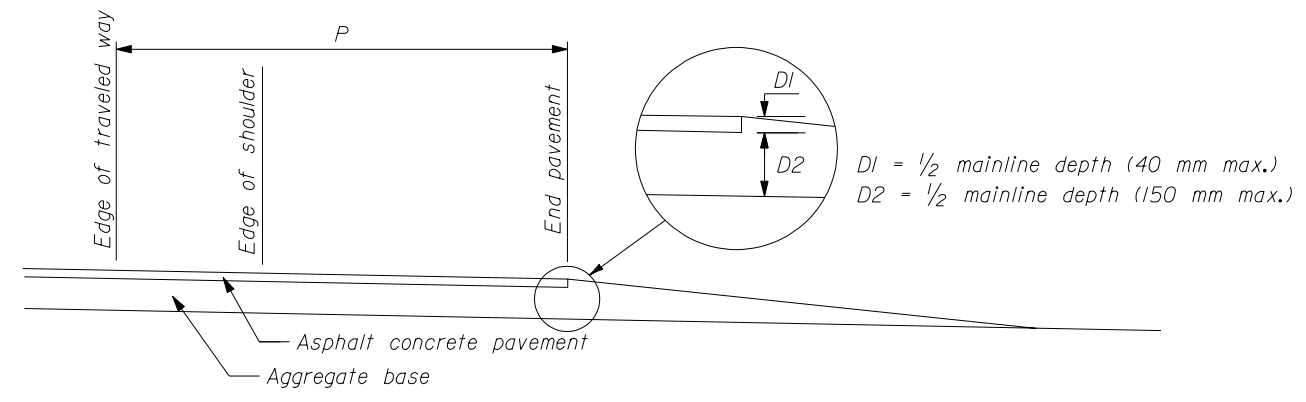
TYPE 1 AND 2



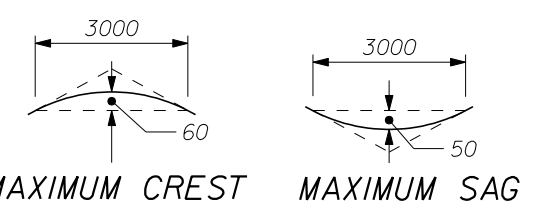
TYPE 3



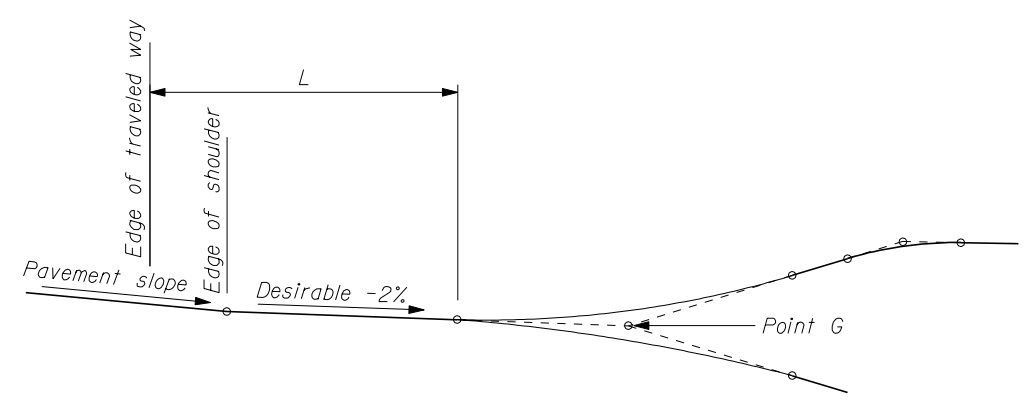
TYPE 1 APPROACH (UNPAVED)



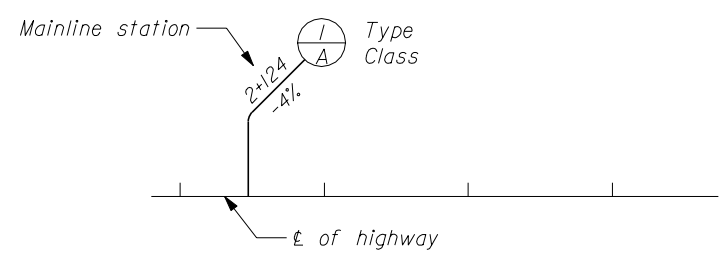
TYPE 2 APPROACHES



Where approach grades meet without vertical curves, limit the maximum algebraic difference to 8% on crests and 12% on sags.



APPROACH PROFILE



ROAD APPROACH SYMBOL

ROAD APPROACHES					
TYPE	CLASS	W	R	L (min.)	
				Dimensions in meters	
Single owner use					
1	A	4.8	4.8	4.8	N/A
2 or 3	A	4.8	4.8	4.8	4.8
2 or 3	B	6.0	4.8	4.8	4.8
Two-way multiple use					
2 or 3	C	7.8	4.8	to R/W	to R/W
2 or 3	D	9.6	9.0	to R/W	to R/W
Public road approach					
3	E	9.6	16.5	16.5	16.5

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

METRIC DETAIL

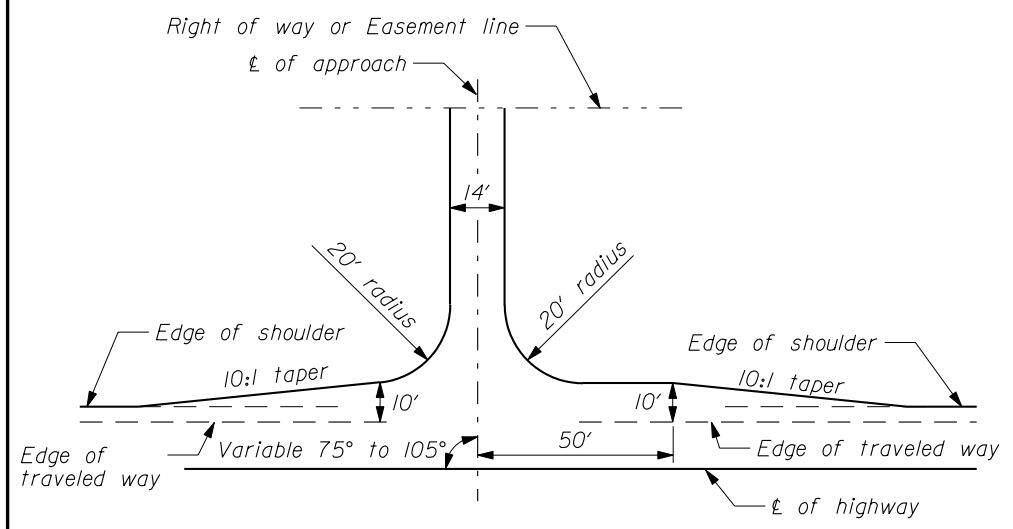
STANDARD OREGON
 ROAD APPROACH

DETAIL APPROVED FOR USE 3/1996

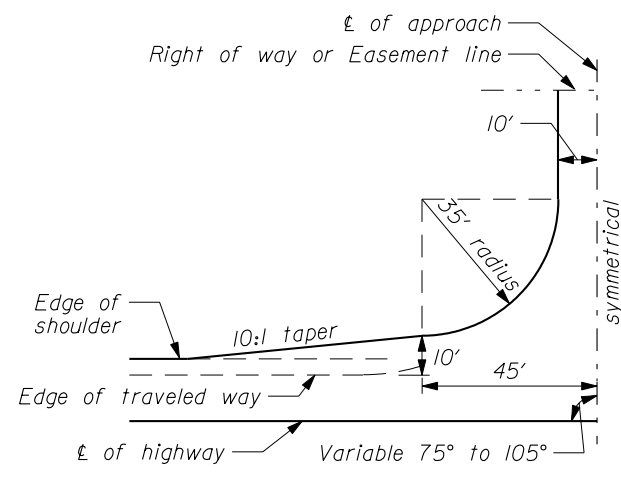
REVISIO: 12/2000 9/2001 12/2002

DETAIL WM200-2

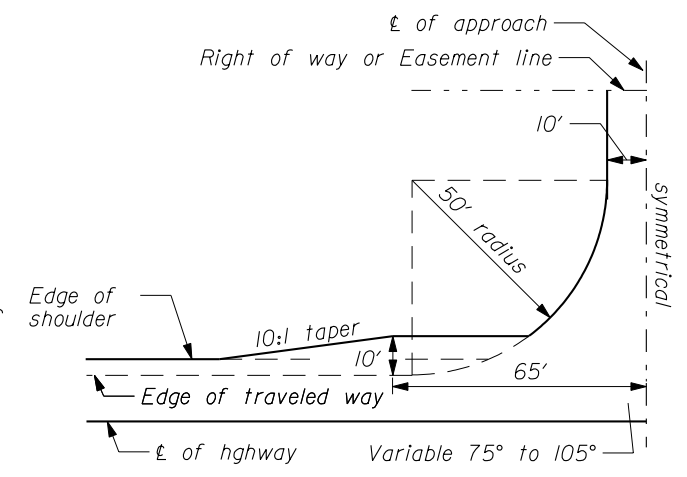
NO SCALE



PLAN OF TYPE A APPROACH



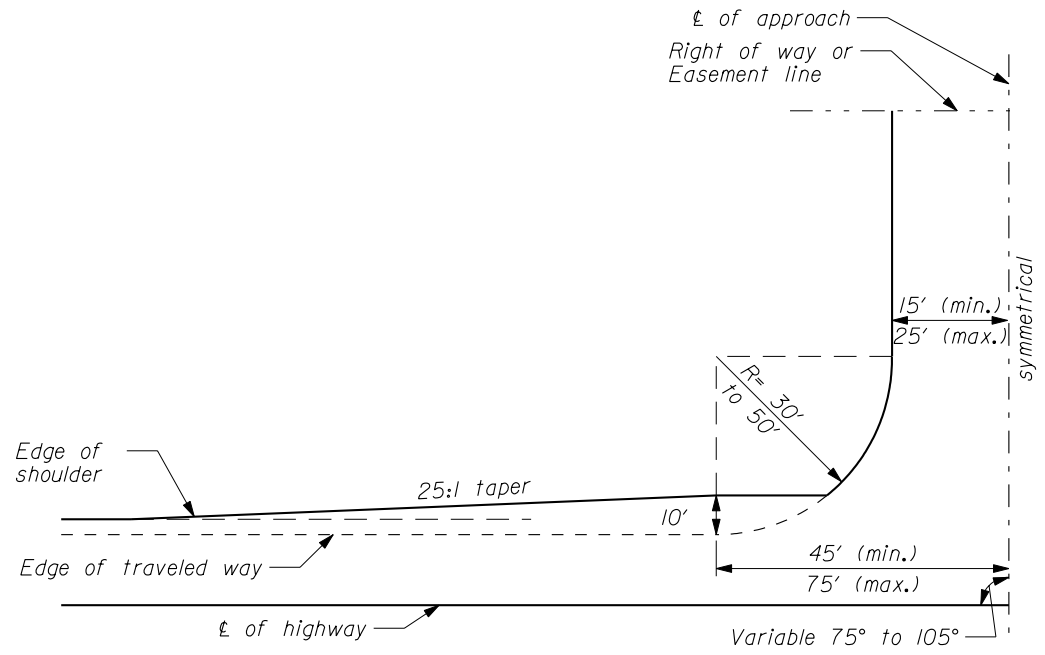
PLAN OF TYPE B APPROACH



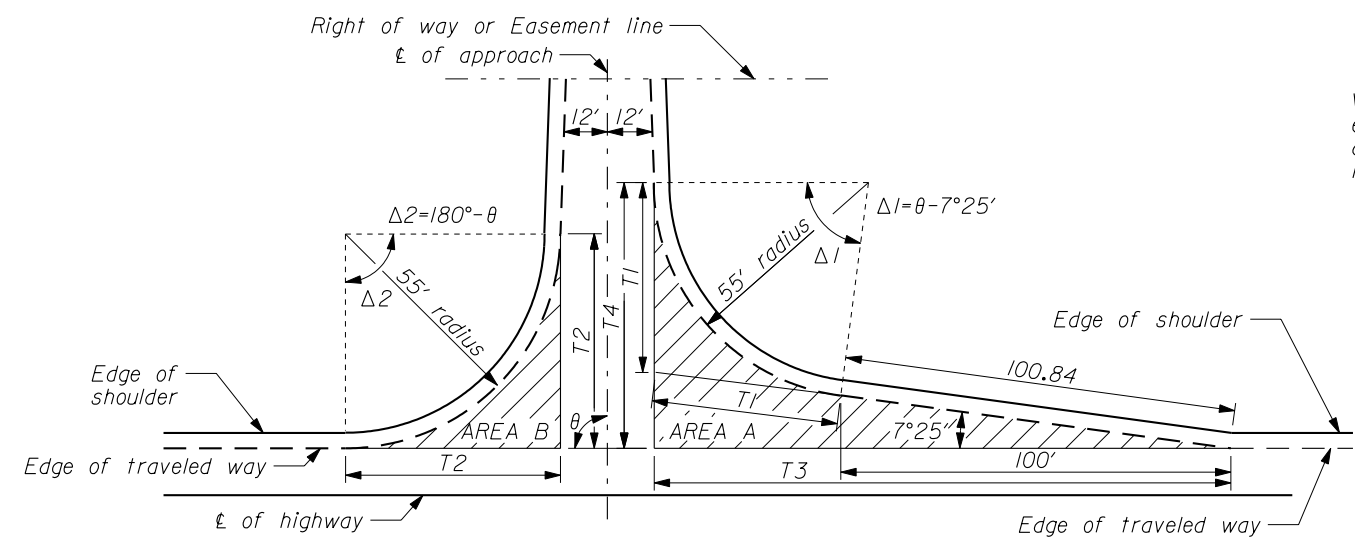
PLAN OF TYPE C APPROACH

- NOTE:**
1. Continue approach radius as required if connection to existing alignment of new approach is at an angle.
 2. Finish Type D and M approaches with the same treatment as shown for the adjacent roadbed.
 3. Finish other approaches with the same treatment as shown for the adjacent roadbed, except the surface course shall not exceed 1/2 inches in depth.
 4. Extend paving to the right-of-way or easement line unless otherwise shown on the plans.
 5. Construct side slope ratios and finish approaches compatible with the adjacent roadway construction.

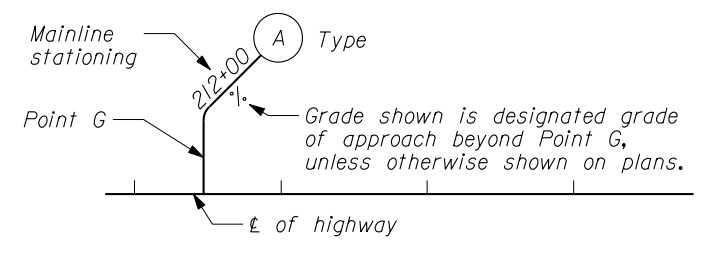
TYPE M INTERSECTION DATA								
SKEW θ	$\Delta 1$	$\Delta 2$	T1 ft	T2 ft	T3 ft	T4 ft	Area A sqyd	Area B sqyd
75°	67°35"	105°	36.81	71.68	131.74	55.20	157	130
76°	68°35"	104°	37.51	70.40	132.74	55.91	160	125
77°	69°35"	103°	38.21	69.14	133.75	56.64	163	120
78°	70°35"	102°	38.93	67.92	134.77	57.38	166	116
79°	71°35"	101°	39.66	66.72	135.80	58.13	169	111
80°	72°35"	100°	40.39	65.55	136.84	58.90	173	107
81°	73°35"	99°	41.13	64.40	137.89	59.69	176	103
82°	74°35"	98°	41.89	63.27	138.95	60.49	179	99
83°	75°35"	97°	42.65	62.17	140.02	61.31	183	95
84°	76°35"	96°	43.42	61.08	141.10	62.15	187	92
85°	77°35"	95°	44.21	60.02	142.20	63.00	191	88
86°	78°35"	94°	45.00	58.98	143.31	63.88	194	85
87°	79°35"	93°	45.81	57.96	144.44	64.77	198	81
88°	80°35"	92°	46.63	56.95	145.57	65.68	203	78
89°	81°35"	91°	47.46	55.97	146.73	66.61	207	75
90°	82°35"	90°	48.30	55.00	147.90	67.56	211	72
91°	83°35"	89°	49.16	54.05	149.09	68.53	216	69
92°	84°35"	88°	50.03	53.11	150.29	69.52	220	66
93°	85°35"	87°	50.92	52.19	151.52	70.53	225	64
94°	86°35"	86°	51.81	51.29	152.76	71.57	230	61
95°	87°35"	85°	52.73	50.40	154.02	72.63	235	59
96°	88°35"	84°	53.66	49.52	155.30	73.71	240	56
97°	89°35"	83°	54.60	48.66	156.61	74.82	245	54
98°	90°35"	82°	55.56	47.81	157.94	75.95	251	52
99°	91°35"	81°	56.54	46.97	159.29	77.11	257	49
100°	92°35"	80°	57.54	46.15	160.66	78.30	263	47
101°	93°35"	79°	58.55	45.34	162.06	79.51	269	45
102°	94°35"	78°	59.59	44.54	163.49	80.76	275	43
103°	95°35"	77°	60.64	43.75	164.94	82.03	281	42
104°	96°35"	76°	61.71	42.97	166.43	83.34	288	40
105°	97°35"	75°	62.81	42.20	167.94	84.68	295	38



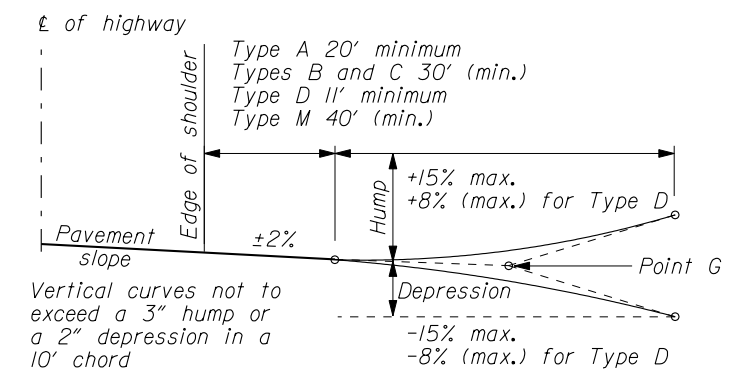
PLAN OF TYPE D APPROACH



PLAN OF TYPE M APPROACH



ROAD APPROACH LOCATIONS ON PLAN SHEETS



PROFILE OF TYPE A, B, C, D, M APPROACHES

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

DETAIL

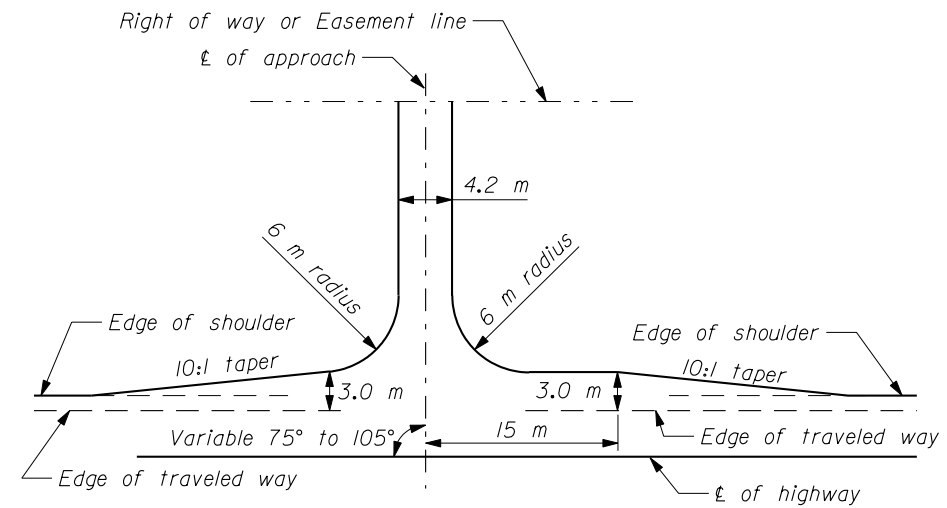
STANDARD WASHINGTON ROAD APPROACHES

DETAIL APPROVED FOR USE 3/2003
 REVISIONS: 4/2003

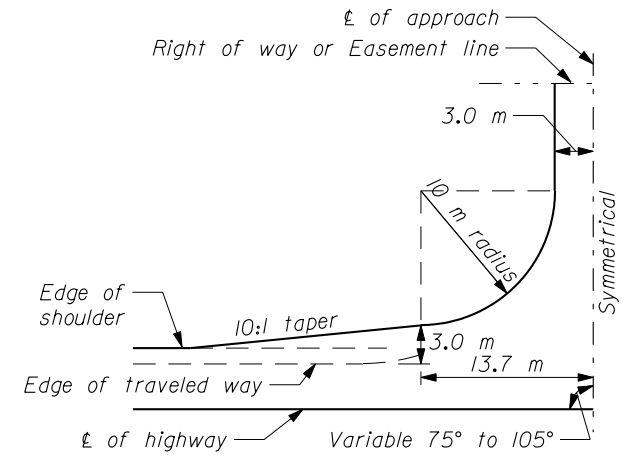
DETAIL
 W200-4

26-Feb-2004 07:18 AM F:\S:\StdDraw\Western\w20004.dgn

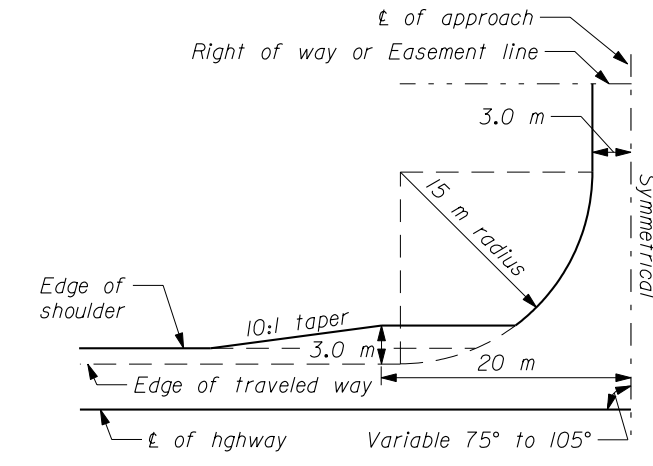
NO SCALE



PLAN OF TYPE A APPROACH



PLAN OF TYPE B APPROACH

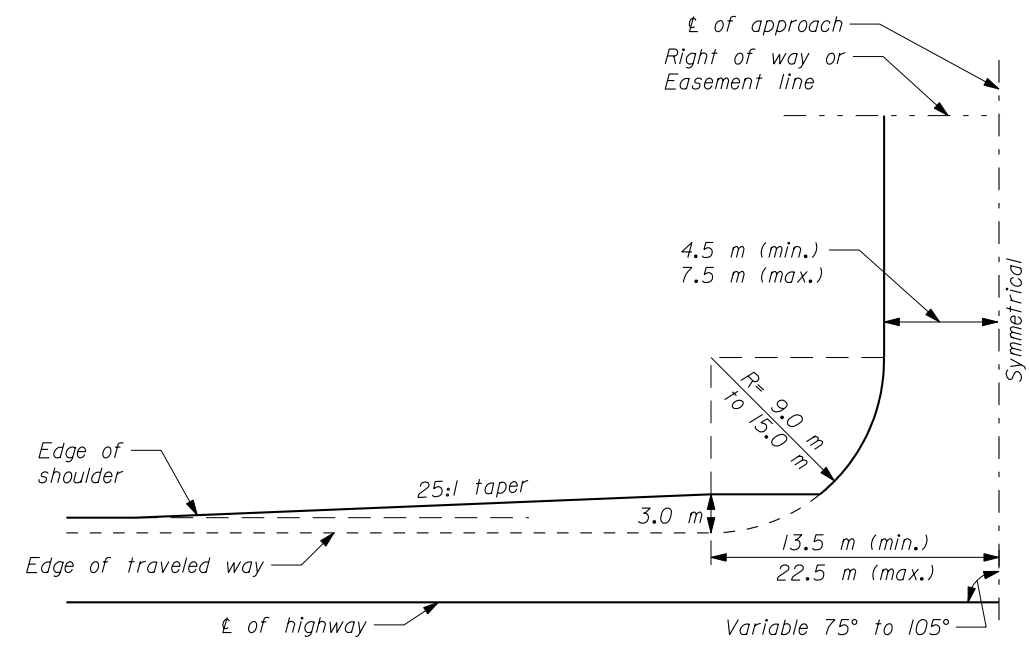


PLAN OF TYPE C APPROACH

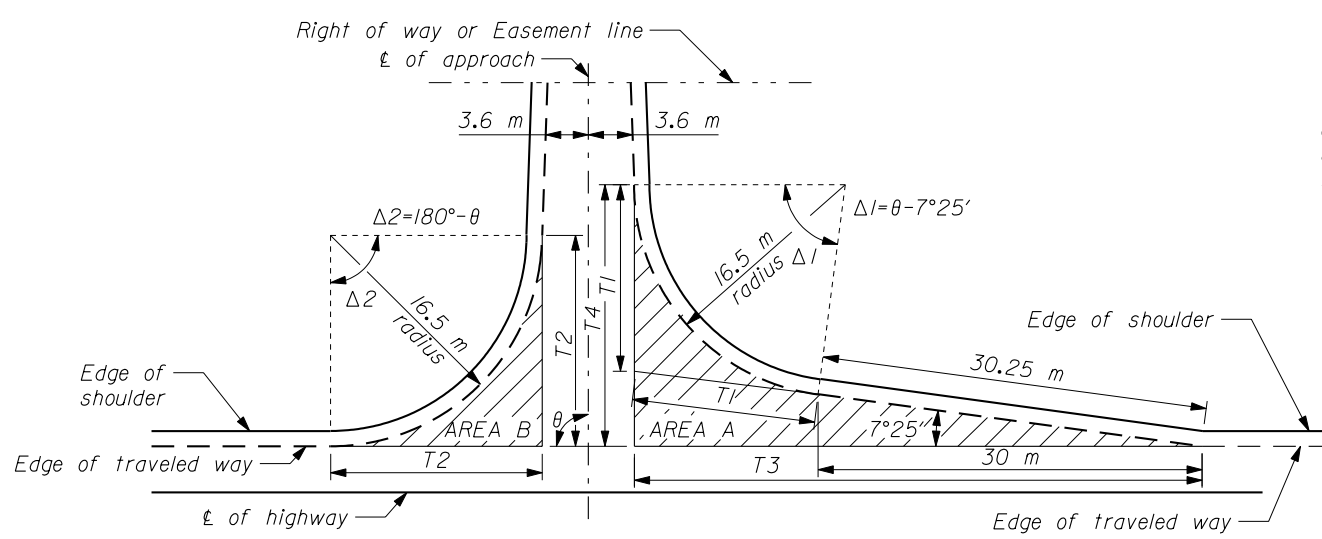
NOTE:

1. Continue approach radius as required if connection to existing alignment of new approach is at an angle.
2. Finish Type D and M approaches with the same treatment as shown for the adjacent roadbed.
3. Finish other approaches with the same treatment as shown for the adjacent roadbed, except the surface course shall not exceed 40 mm in depth.
4. Extend paving to the right-of-way or easement line unless otherwise shown on the plans.
5. Construct side slope ratios and finish approaches compatible with the adjacent roadway construction.
6. Dimensions not labeled are in millimeters.

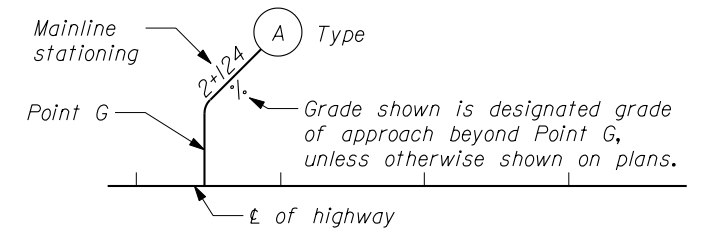
TYPE M INTERSECTION DATA								
SKEW θ	$\Delta 1$	$\Delta 2$	T1 m	T2 m	T3 m	T4 m	Area A m ²	Area B m ²
75°	67°35"	105°	11.04	21.50	39.52	16.56	127	105
76°	68°35"	104°	11.25	21.12	39.82	16.77	129	101
77°	69°35"	103°	11.46	20.74	40.13	16.99	132	98
78°	70°35"	102°	11.68	20.38	40.43	17.21	134	94
79°	71°35"	101°	11.90	20.02	40.74	17.44	137	90
80°	72°35"	100°	12.12	19.66	41.05	17.67	140	87
81°	73°35"	99°	12.34	19.32	41.37	17.91	143	84
82°	74°35"	98°	12.57	18.98	41.68	18.15	145	80
83°	75°35"	97°	12.79	18.65	42.01	18.39	148	77
84°	76°35"	96°	13.03	18.33	42.33	18.64	151	74
85°	77°35"	95°	13.26	18.01	42.66	18.90	154	71
86°	78°35"	94°	13.50	17.69	42.99	19.16	157	69
87°	79°35"	93°	13.74	17.39	43.33	19.43	161	66
88°	80°35"	92°	13.99	17.09	43.67	19.70	164	63
89°	81°35"	91°	14.24	16.79	44.02	19.98	168	61
90°	82°35"	90°	14.49	16.50	44.37	20.27	171	58
91°	83°35"	89°	14.75	16.21	44.73	20.56	175	56
92°	84°35"	88°	15.01	15.93	45.09	20.86	178	54
93°	85°35"	87°	15.27	15.66	45.45	21.16	182	52
94°	86°35"	86°	15.54	15.39	45.83	21.47	186	50
95°	87°35"	85°	15.82	15.12	46.21	21.79	190	48
96°	88°35"	84°	16.10	14.86	46.59	22.11	195	46
97°	89°35"	83°	16.38	14.60	46.98	22.45	199	44
98°	90°35"	82°	16.67	14.34	47.38	22.79	203	42
99°	91°35"	81°	16.96	14.09	47.79	23.13	208	40
100°	92°35"	80°	17.26	13.85	48.20	23.49	213	38
101°	93°35"	79°	17.57	13.60	48.62	23.85	218	37
102°	94°35"	78°	17.88	13.36	49.05	24.23	223	35
103°	95°35"	77°	18.19	13.12	49.48	24.61	228	34
104°	96°35"	76°	18.51	12.89	49.93	25.00	233	32
105°	97°35"	75°	18.84	12.66	50.38	25.40	239	31



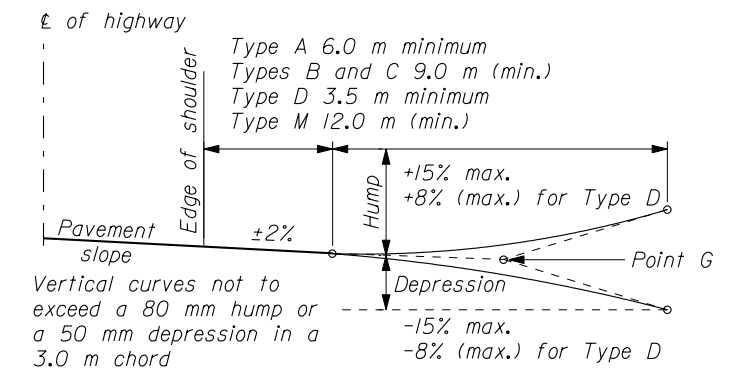
PLAN OF TYPE D APPROACH



PLAN OF TYPE M APPROACH



ROAD APPROACH LOCATIONS ON PLAN SHEETS



PROFILE OF TYPE A, B, C, D, M APPROACHES

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

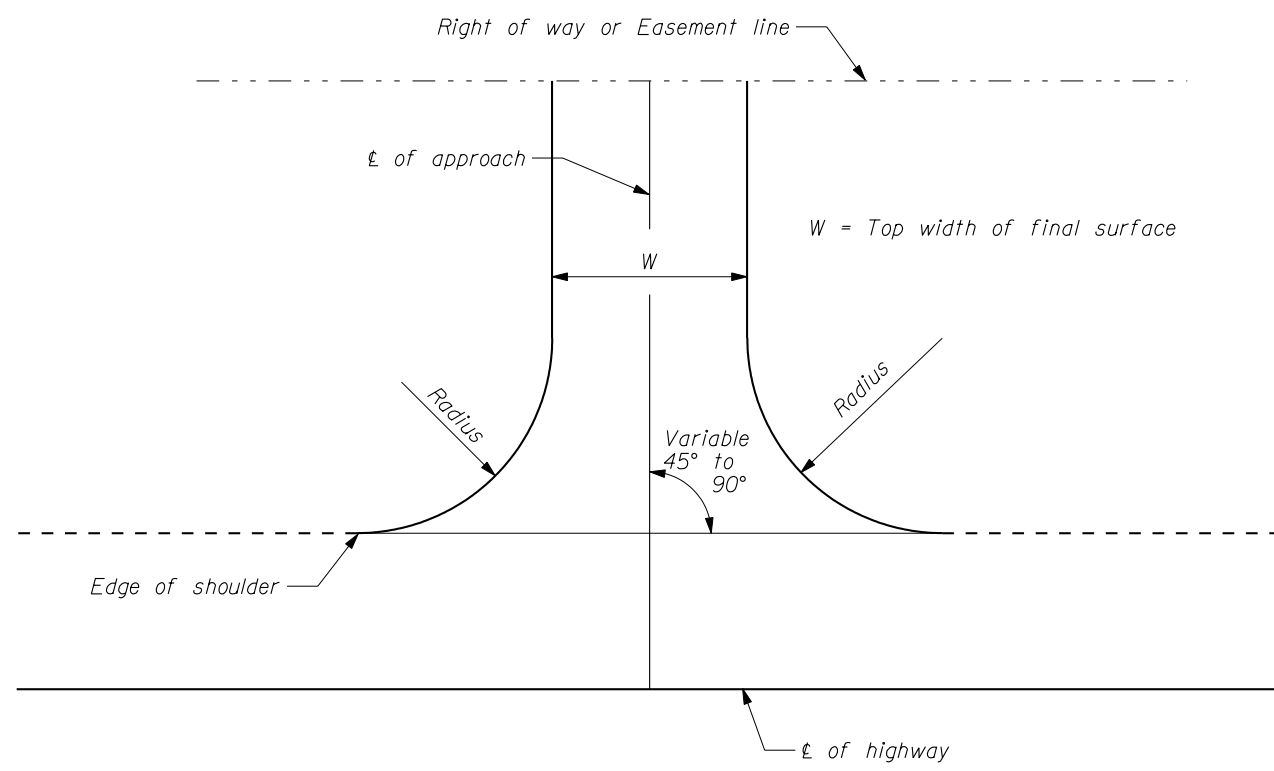
METRIC DETAIL

STANDARD WASHINGTON
ROAD APPROACHES

DETAIL APPROVED FOR USE 3/1996
REVISED: 3/1999 12/2000 3/2003 4/2003

DETAIL
WM200-4

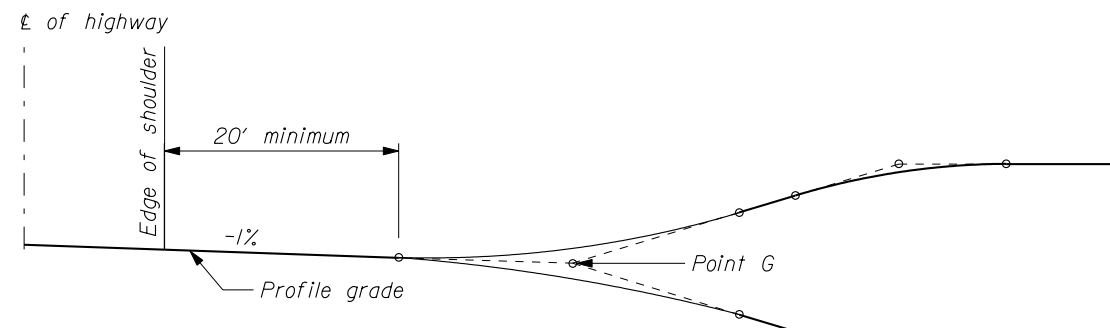
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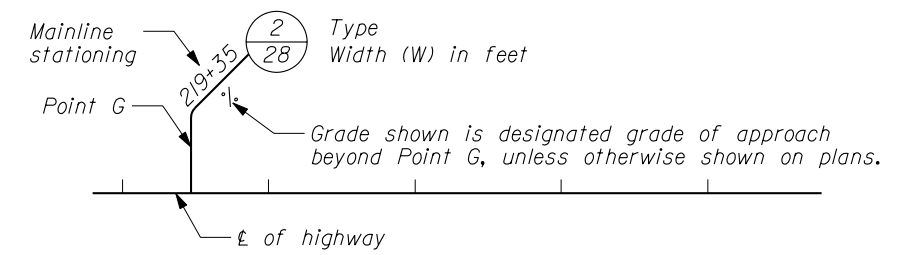
APPROACHES FOR UNCURBED HIGHWAYS
TYPE 1 AND TYPE 2

NOTE:

1. TYPE 1 APPROACH:
Top width (W) - 16' minimum
Radius - 20' minimum
2. TYPE 2 APPROACH:
Top width (W) - 24' minimum
Radius - 30' minimum
3. GRADING REQUIREMENTS: Construct sideslopes of finish approaches compatible with adjacent roadway construction.
4. PAVEMENT STRUCTURE REQUIREMENTS: Extend the surface course to the right-of-way or easement line unless otherwise shown on the plans.
5. Finish approaches to public roads used for commercial purposes with same treatment as shown for the adjacent roadbed.
6. Finish other approaches with aggregate base. Provide a surface course of the same treatment as shown for the adjacent roadbed, but do not exceed 1 1/2" in depth.



APPROACH PROFILE

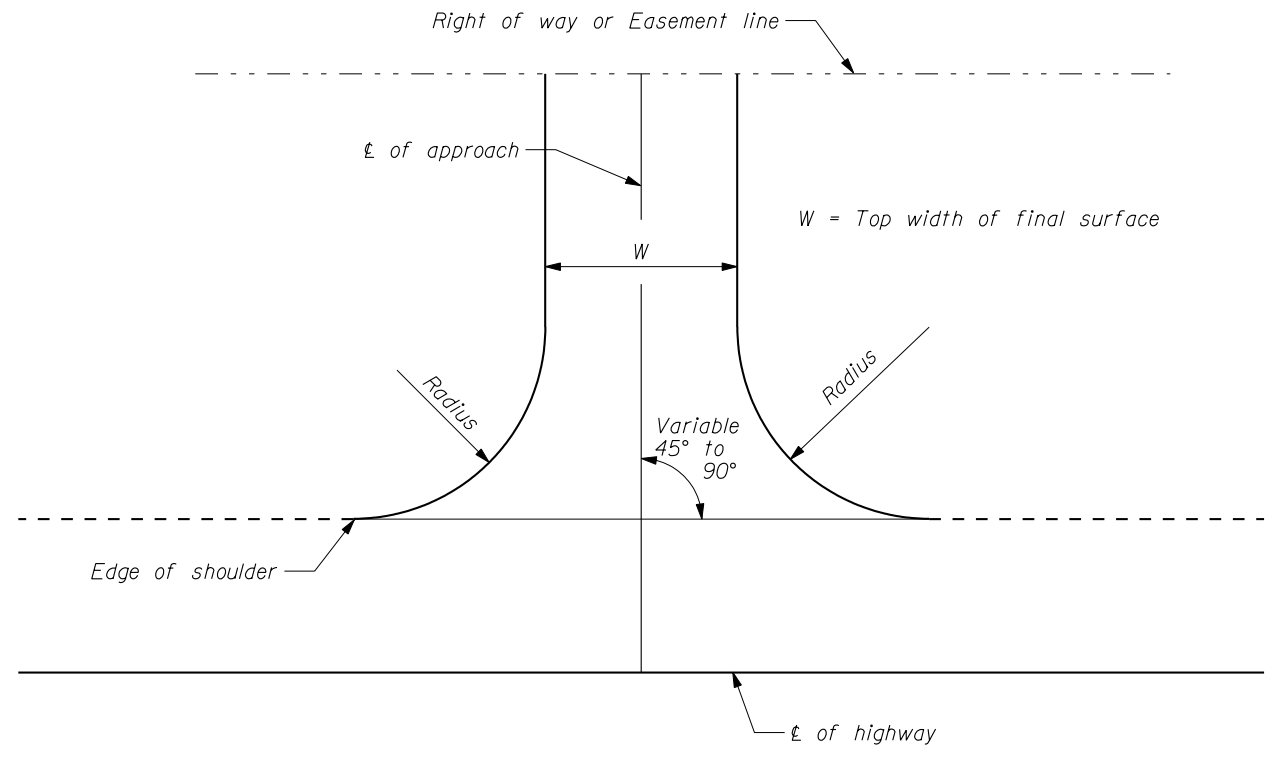


ROAD APPROACH LOCATIONS
ON PLAN SHEETS

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
DETAIL	
STANDARD IDAHO ROAD APPROACH	
DETAIL APPROVED FOR USE 3/2003	DETAIL
REVISED:	W200-5

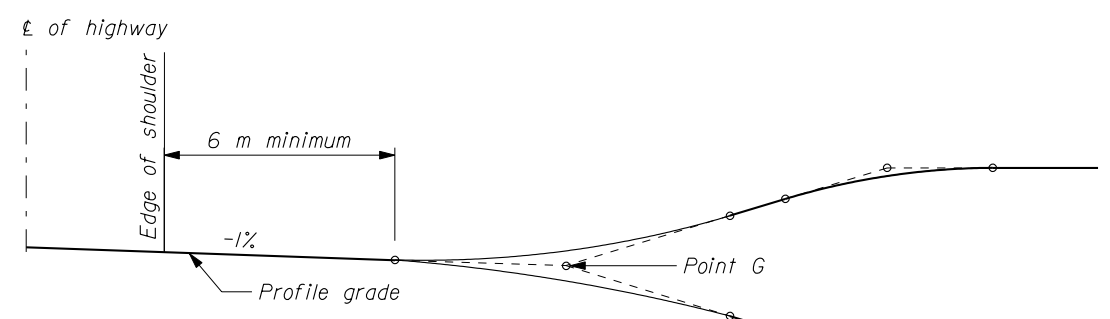
3/18/2003
f:\StandDraw\Western\w20005.dgn



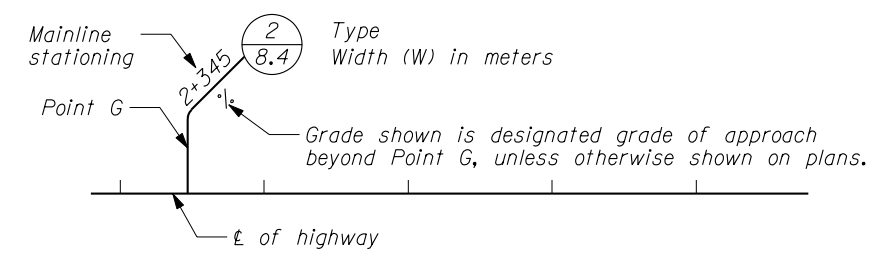
APPROACHES FOR UNCURBED HIGHWAYS
TYPE 1 AND TYPE 2

NOTE:

1. TYPE 1 APPROACH:
Top width (W) - 4.8 m minimum
Radius - 6 m minimum
2. TYPE 2 APPROACH:
Top width (W) - 7.2 m minimum
Radius - 9 m minimum
3. GRADING REQUIREMENTS: Construct sideslopes of finish approaches compatible with adjacent roadway construction.
4. PAVEMENT STRUCTURE REQUIREMENTS: Extend the surface course to the right-of-way or easement line unless otherwise shown on the plans.
5. Finish approaches to public roads used for commercial purposes with same treatment as shown for the adjacent roadbed.
6. Finish other approaches with aggregate base. Provide a surface course of the same treatment as shown for the adjacent roadbed, but do not exceed 40 mm in depth.
7. Dimensions not labeled are in millimeters.



APPROACH PROFILE

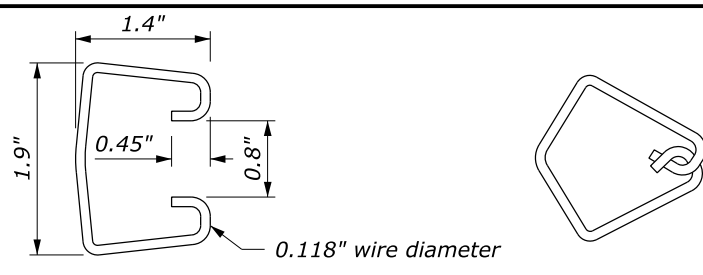


ROAD APPROACH LOCATIONS
ON PLAN SHEETS

NO SCALE

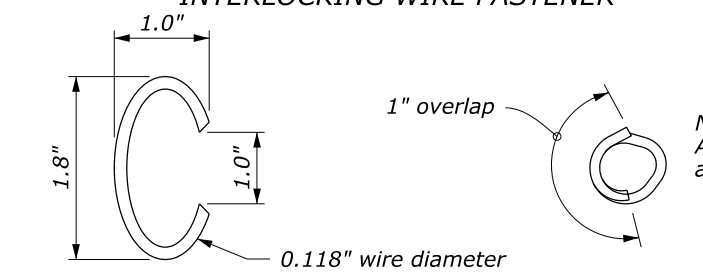
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
STANDARD IDAHO ROAD APPROACH	
DETAIL APPROVED FOR USE 3/1996	DETAIL
REVISED: 12/2000 3/2003	WM200-5

3/18/2003
f:\s\anDraw\Western\wm20005.dgn



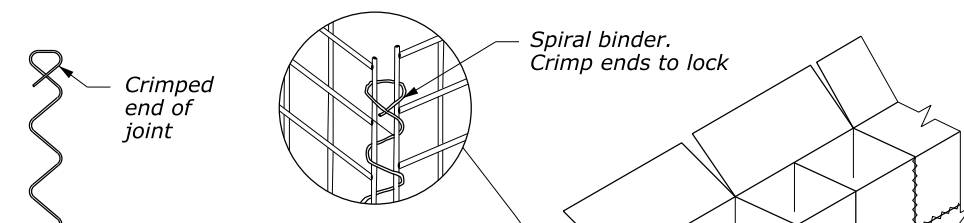
INTERLOCKING WIRE FASTENER
BEFORE CLOSURE AFTER CLOSURE

NOTE:
All dimensions
are nominal

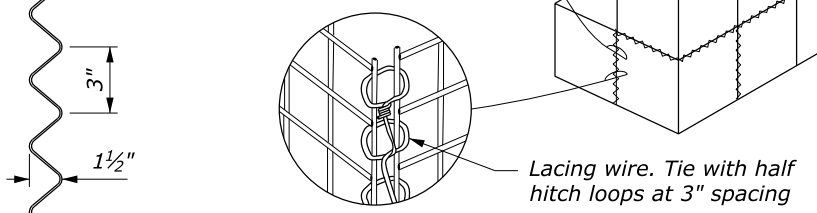


OVERLAPPING RING WIRE FASTENER
BEFORE CLOSURE AFTER CLOSURE

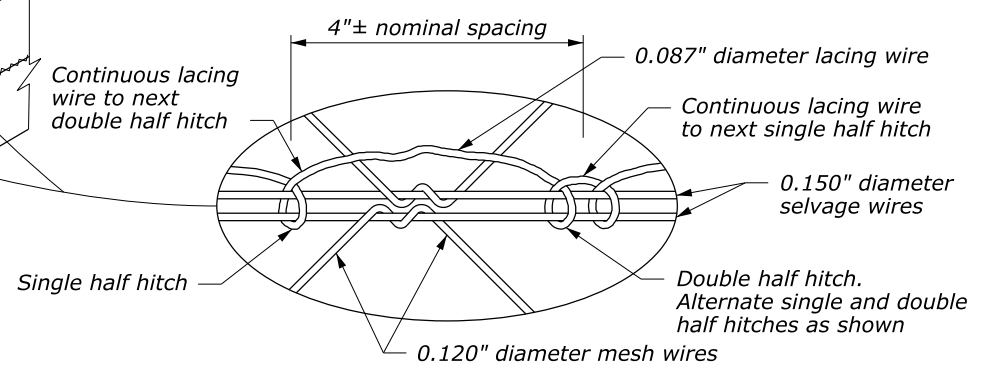
ALTERNATE TYING FASTENERS
(Not allowed for basket to basket connection)



SPIRAL BINDER TIE
(Welded wire mesh)



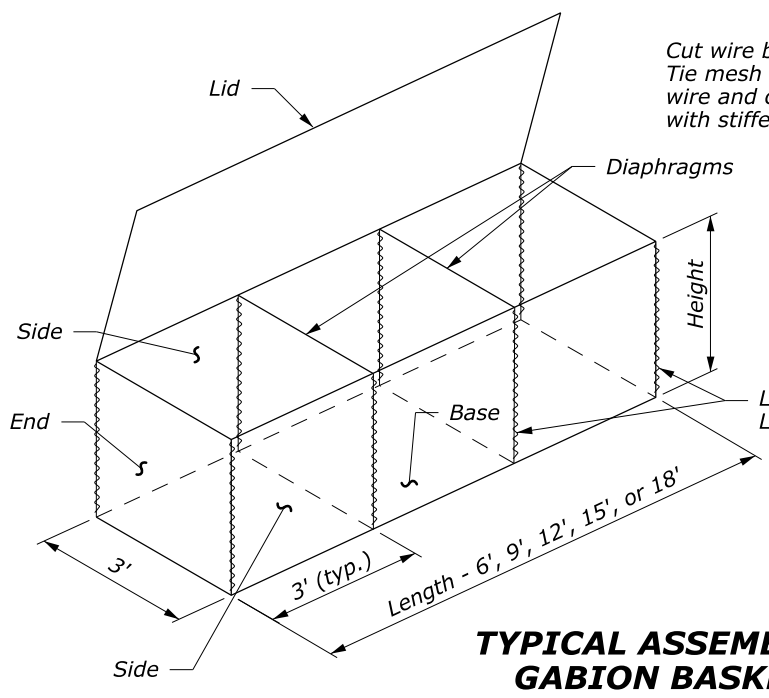
HALF HITCH LACING DETAIL
(Welded wire mesh)



HALF HITCH LACING DETAIL
(Twisted wire mesh)

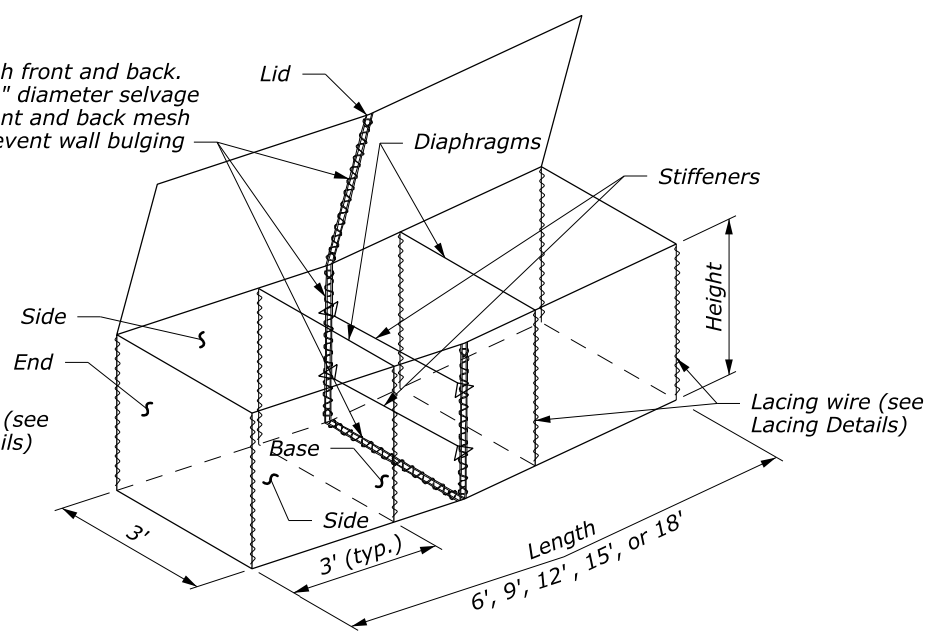
TYPICAL INSTALLATION GABION BASKETS

0.150" DIAMETER SPIRAL BINDER

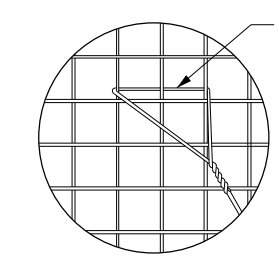


TYPICAL ASSEMBLED GABION BASKET

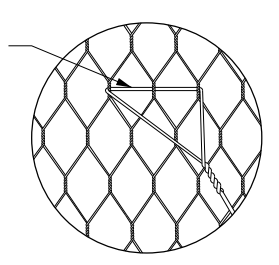
Cut wire basket mesh front and back. Tie mesh with 0.150" diameter selvage wire and connect front and back mesh with stiffeners to prevent wall bulging.



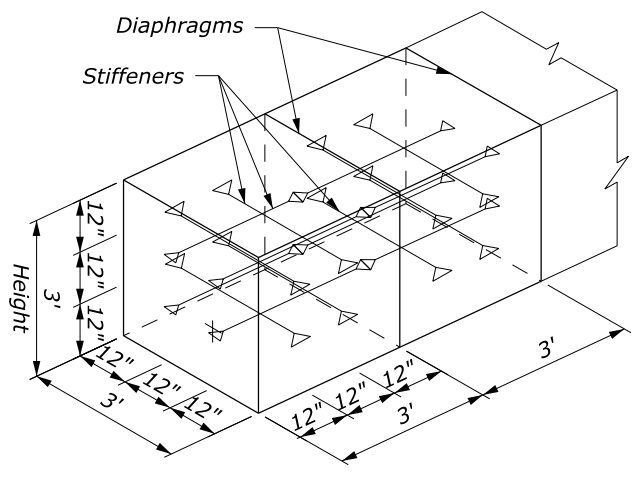
ASSEMBLED GABION BASKET IN WALL GRADE TRANSITION AREAS



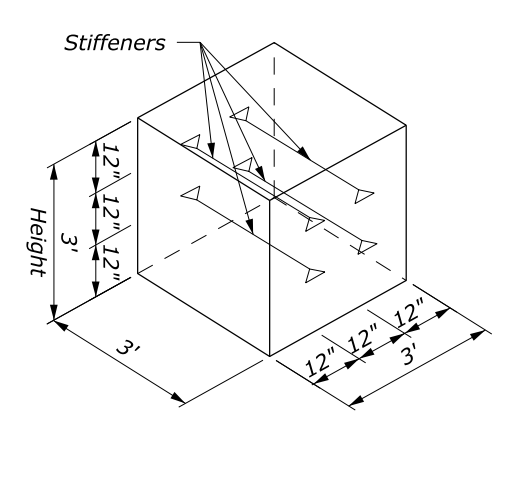
WELDED WIRE MESH



TWISTED WIRE MESH



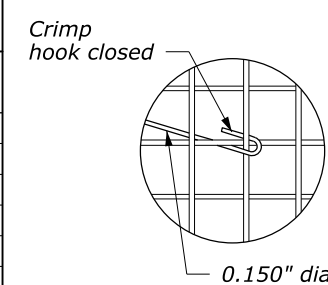
ALL END GABION CELLS



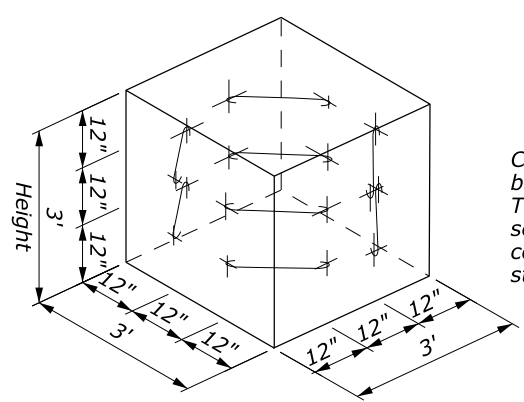
ALL INTERIOR GABION CELLS

TYPICAL STIFFENERS

GABION BASKET NOMINAL SIZES AND CAPACITY				
Size Code Letter	Size in feet		Diaphragm Partitions	Capacity (CUYD)
	Length	Height		
A	6	3.0	1	2.00
B	9	3.0	2	3.00
C	12	3.0	3	4.00
X	15	3.0	4	5.00
Y	18	3.0	5	6.00
D	6	1.5	1	1.00
E	9	1.5	2	1.50
F	12	1.5	3	2.00
G	6	1.0	1	0.67
H	9	1.0	2	1.00
I	12	1.0	3	1.33

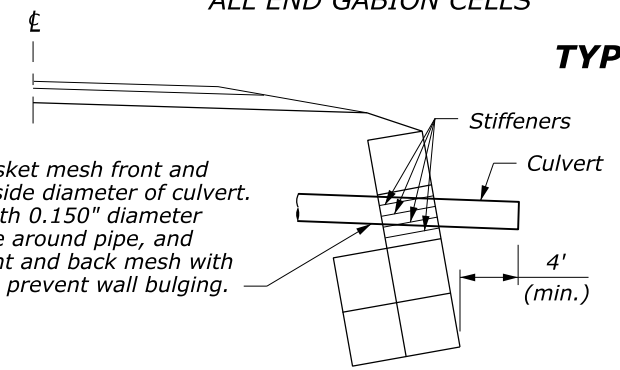


0.150" diameter stiffener hooked at intersection of wires



ALL GABION CELLS

OPTIONAL STIFFENERS WELDED WIRE GABION BASKET



TYPICAL CULVERT INSTALLATION THROUGH GABION WALL

Cut wire basket mesh front and back to outside diameter of culvert. Tie mesh with 0.150" diameter selvage wire around pipe, and connect front and back mesh with stiffeners to prevent wall bulging.

NO SCALE

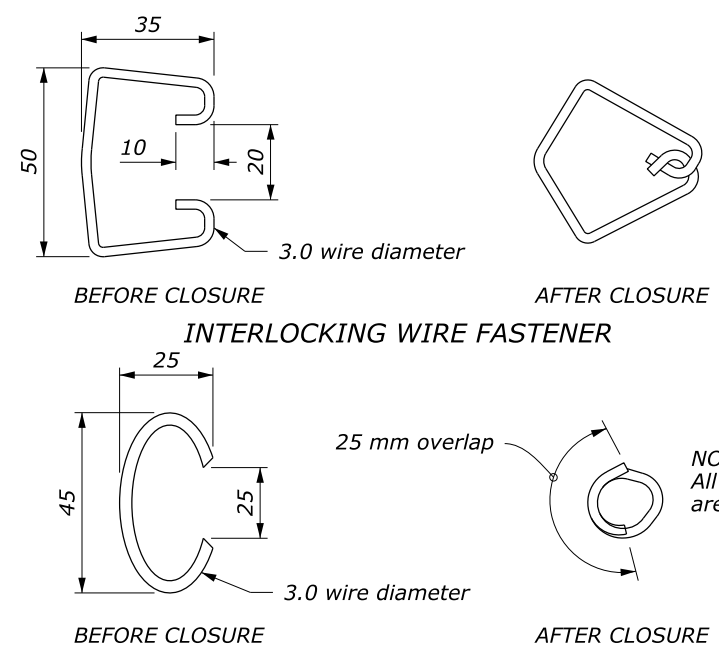
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

GABION BASKET

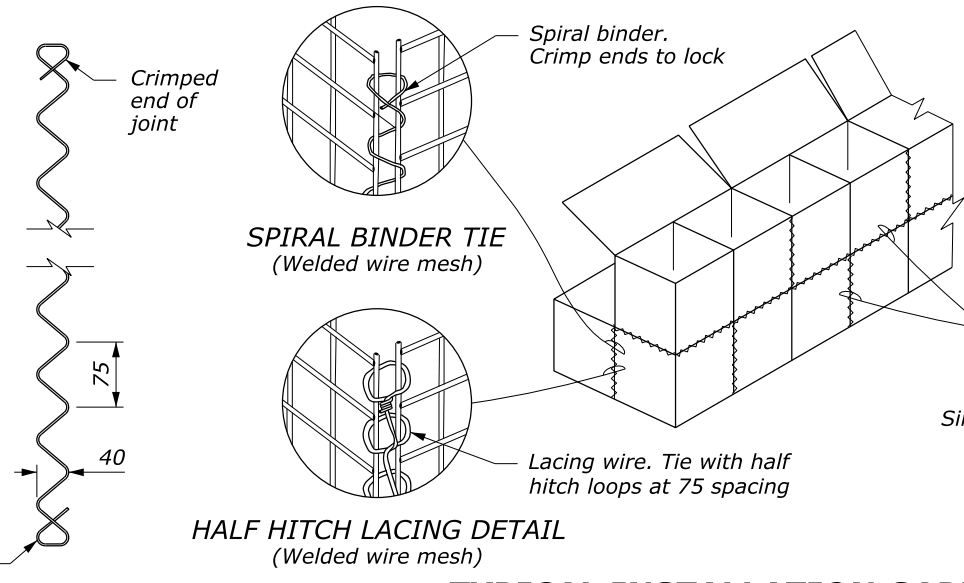
DETAIL APPROVED FOR USE --/---
REVISION: 9/2011
DRAFT: 9/2011

DETAIL
W253-1

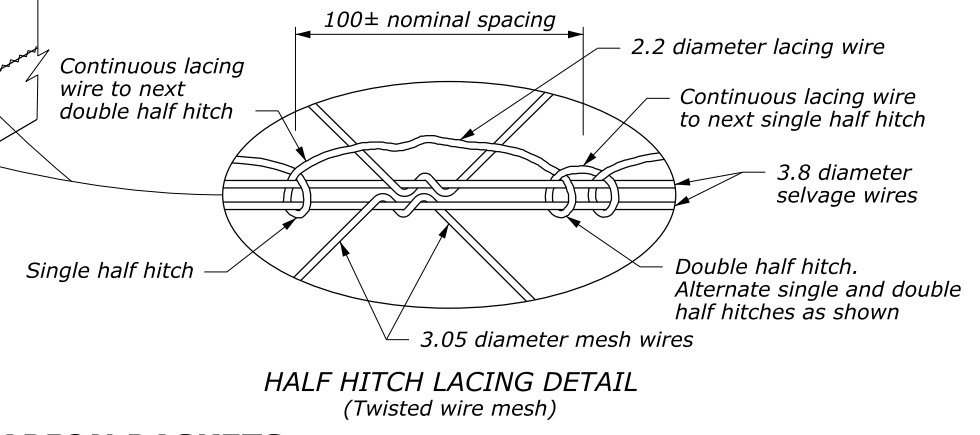


NOTE:
All dimensions
are nominal

NOTE:
All dimensions
are nominal



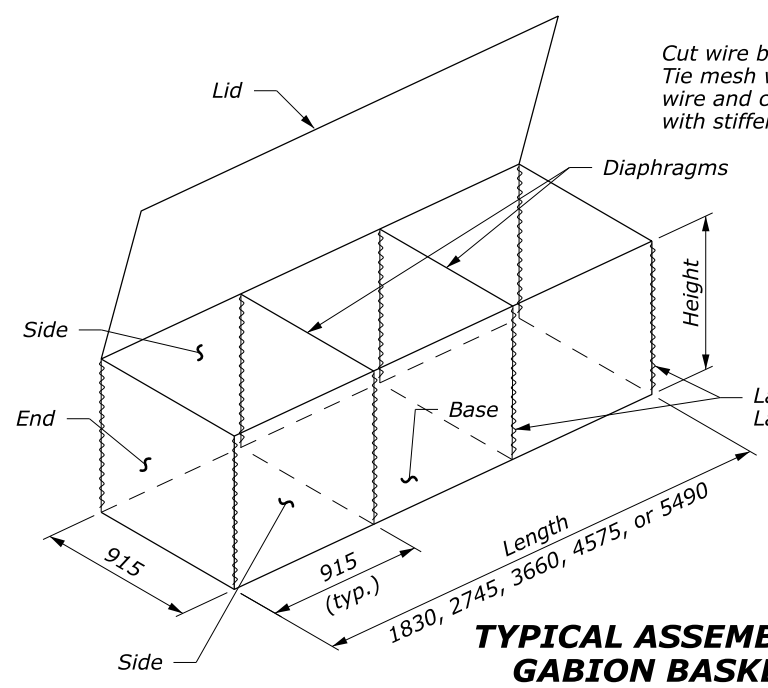
NOTE:
1. Dimensions not labeled are in millimeters.



TYPICAL INSTALLATION GABION BASKETS

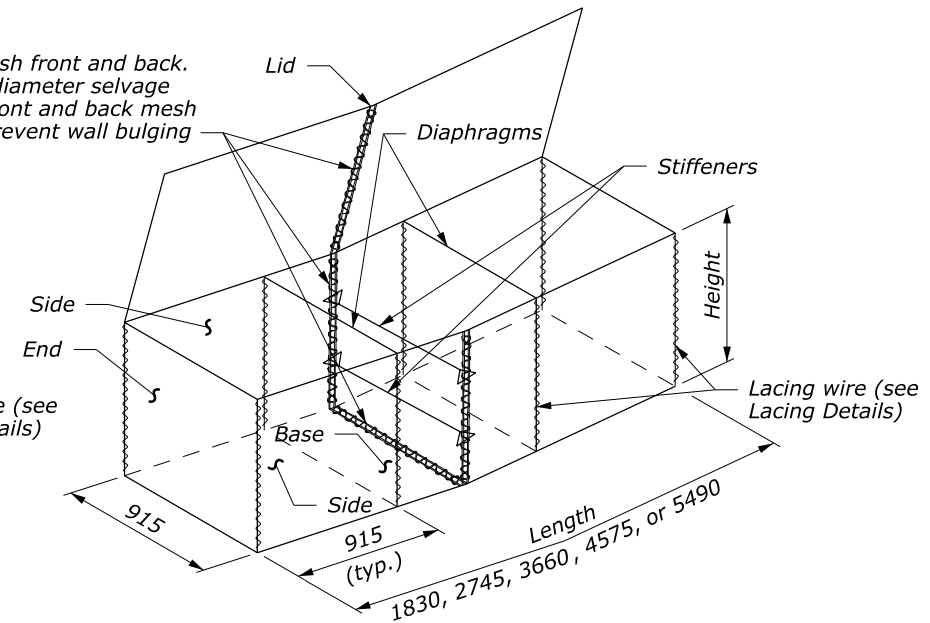
**OVERLAPPING RING WIRE FASTENER
(Not allowed for basket to basket connection)
ALTERNATE TYING FASTENERS**

**3.8 mm DIAMETER
SPIRAL BINDER**

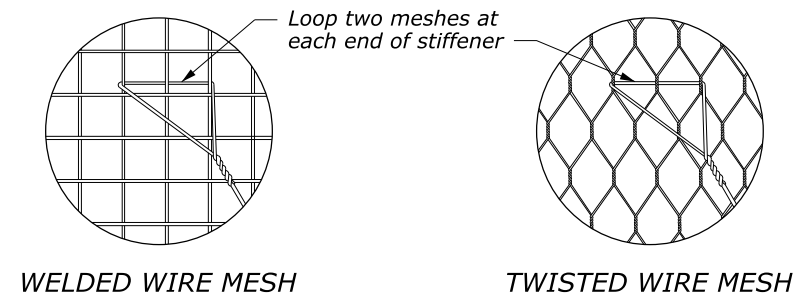


**TYPICAL ASSEMBLED
GABION BASKET**

Cut wire basket mesh front and back.
Tie mesh with 3.8 diameter selvage
wire and connect front and back mesh
with stiffeners to prevent wall bulging

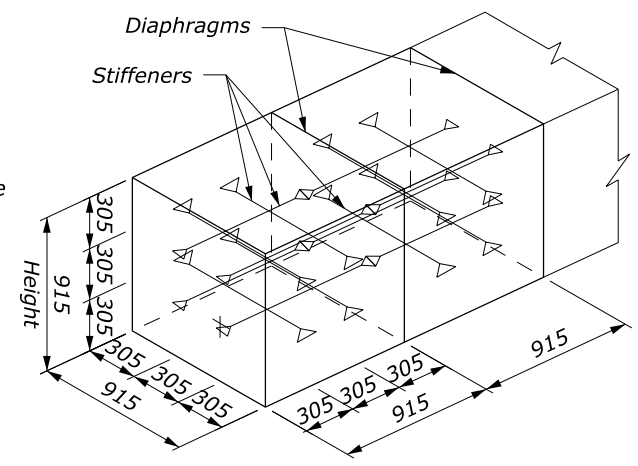


**ASSEMBLED GABION BASKET IN
WALL GRADE TRANSITION AREAS**

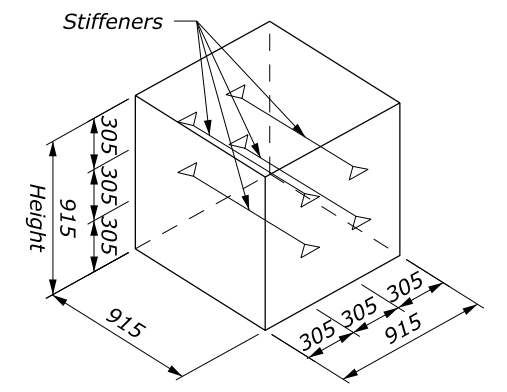


WELDED WIRE MESH

TWISTED WIRE MESH

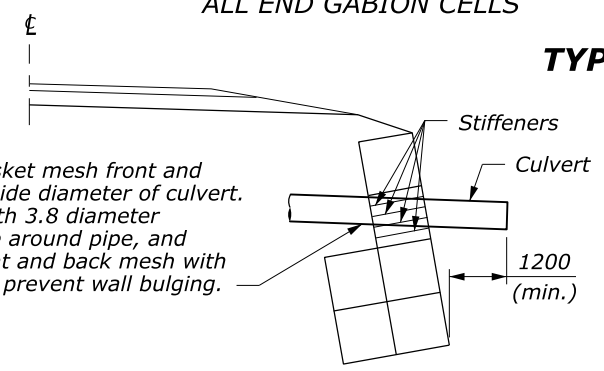


ALL END GABION CELLS



ALL INTERIOR GABION CELLS

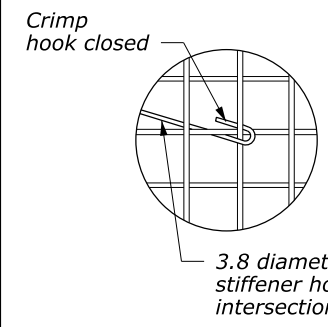
TYPICAL STIFFENERS



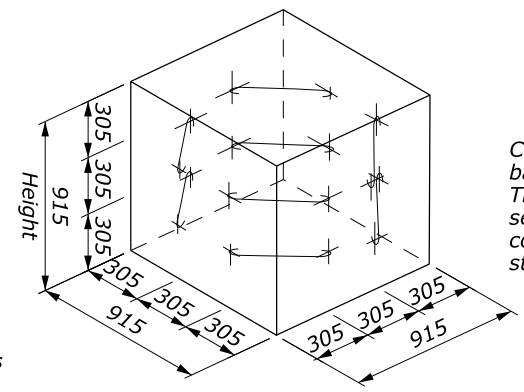
**TYPICAL CULVERT INSTALLATION
THROUGH GABION WALL**

NO SCALE

GABION BASKET NOMINAL SIZES AND CAPACITY				
Size Code Letter	Size in meters		Diaphragm Partitions	Capacity (m ³)
	Length	Height		
A	1.83	0.915	1	1.5
B	2.75	0.915	2	2.3
C	3.66	0.915	3	3.1
X	4.58	0.915	4	3.8
Y	5.49	0.915	5	4.6
D	1.83	0.45	1	0.8
E	2.75	0.45	2	1.1
F	3.66	0.45	3	1.5
G	1.83	0.30	1	0.5
H	2.75	0.30	2	0.8
I	3.66	0.30	3	1.0



3.8 diameter
stiffener hooked at
intersection of wires



**ALL GABION CELLS
OPTIONAL STIFFENERS
WELDED WIRE GABION BASKET**

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

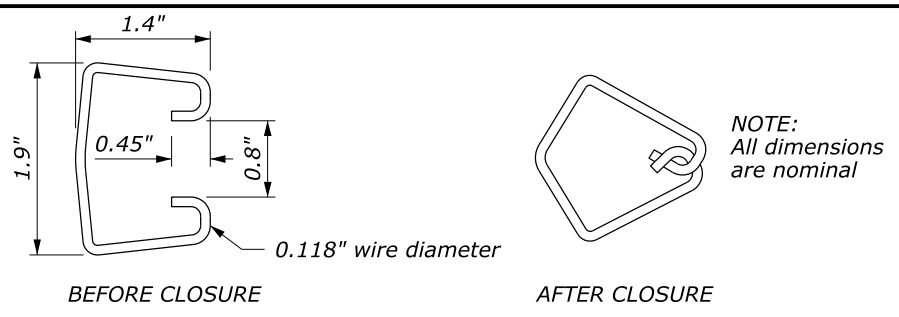
METRIC DETAIL

GABION BASKET

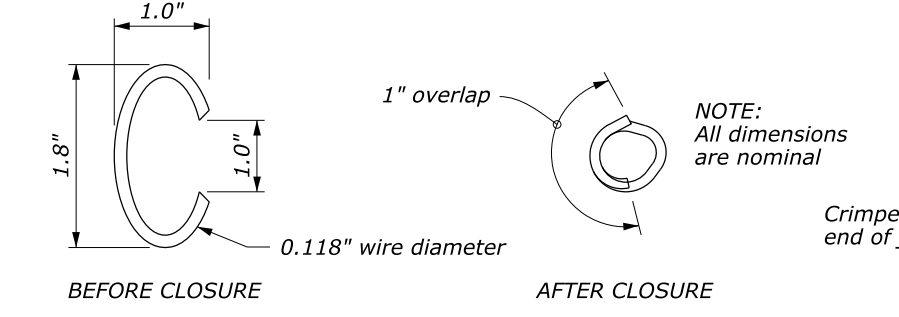
DETAIL APPROVED FOR USE --/----

REVISID: 9/2011

DETAIL WM253-1



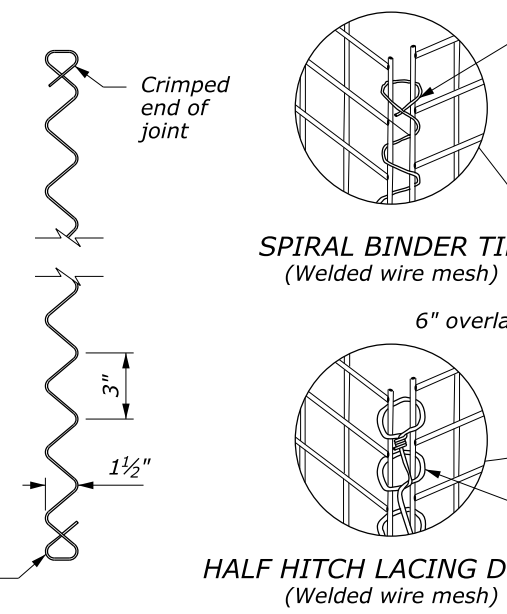
INTERLOCKING WIRE FASTENER



**OVERLAPPING RING WIRE FASTENER
ALTERNATE TYING FASTENERS**

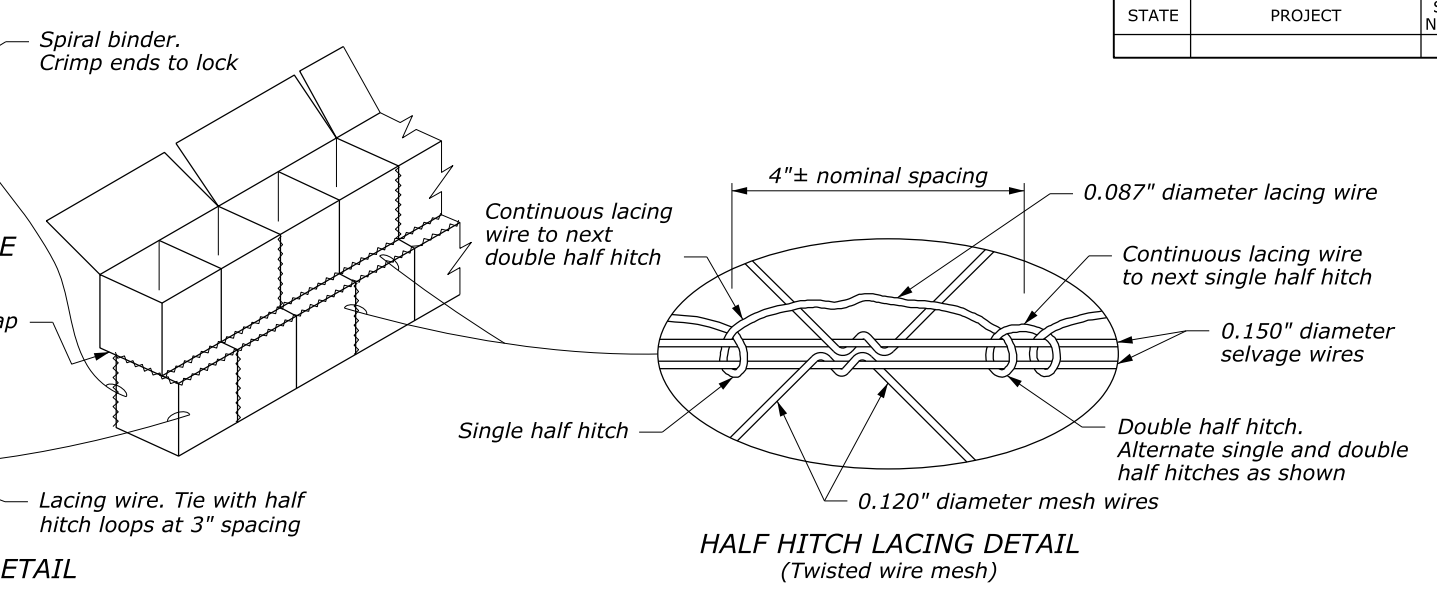
NOTE:
All dimensions
are nominal

NOTE:
All dimensions
are nominal



**SPIRAL BINDER TIE
(Welded wire mesh)**

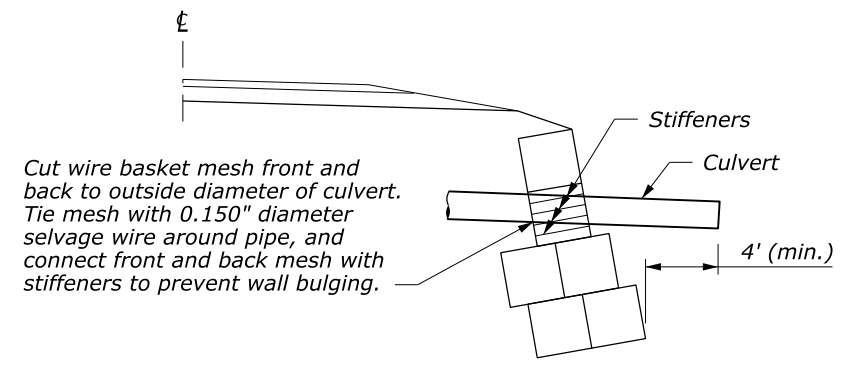
**HALF HITCH LACING DETAIL
(Welded wire mesh)**



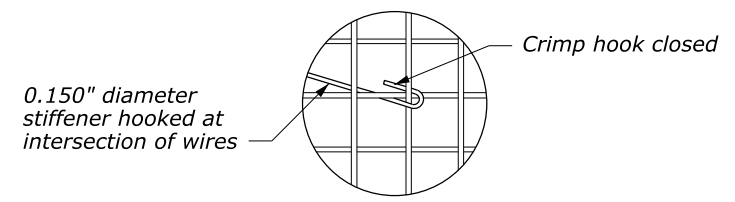
**HALF HITCH LACING DETAIL
(Twisted wire mesh)**

TYPICAL INSTALLATION GABION BASKETS

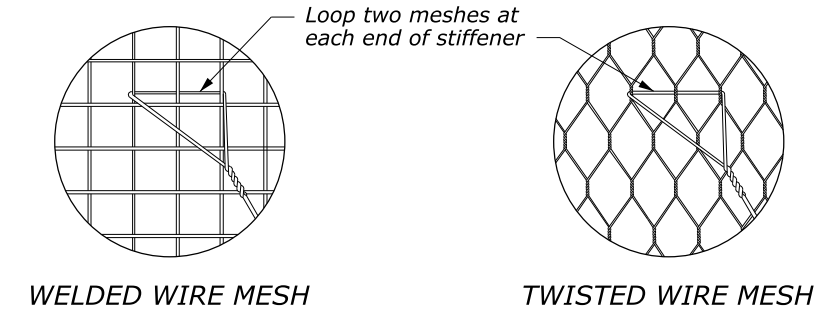
**0.150" DIAMETER
SPIRAL BINDER**



**TYPICAL CULVERT INSTALLATION
THROUGH GABION WALL**

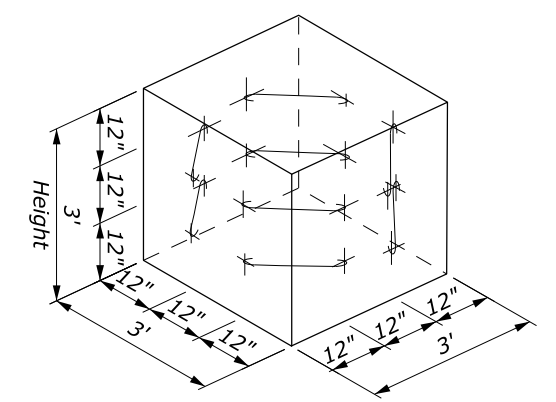


0.150" diameter
stiffener hooked at
intersection of wires



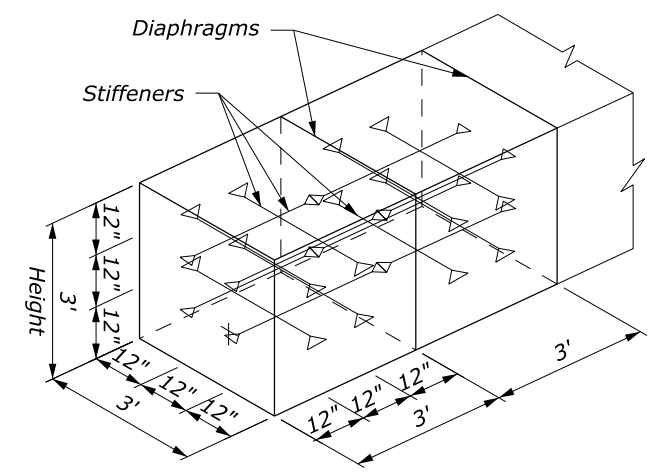
WELDED WIRE MESH

TWISTED WIRE MESH

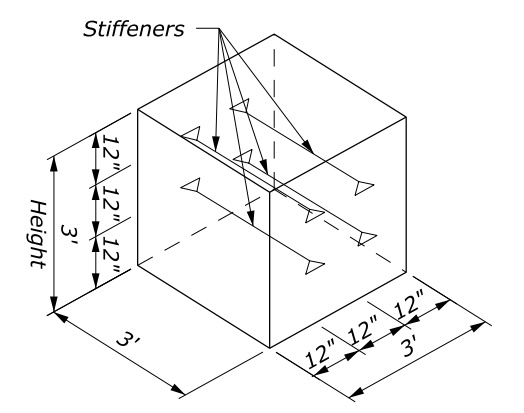


ALL GABION CELLS

**OPTIONAL STIFFENERS
WELDED WIRE GABION BASKET**

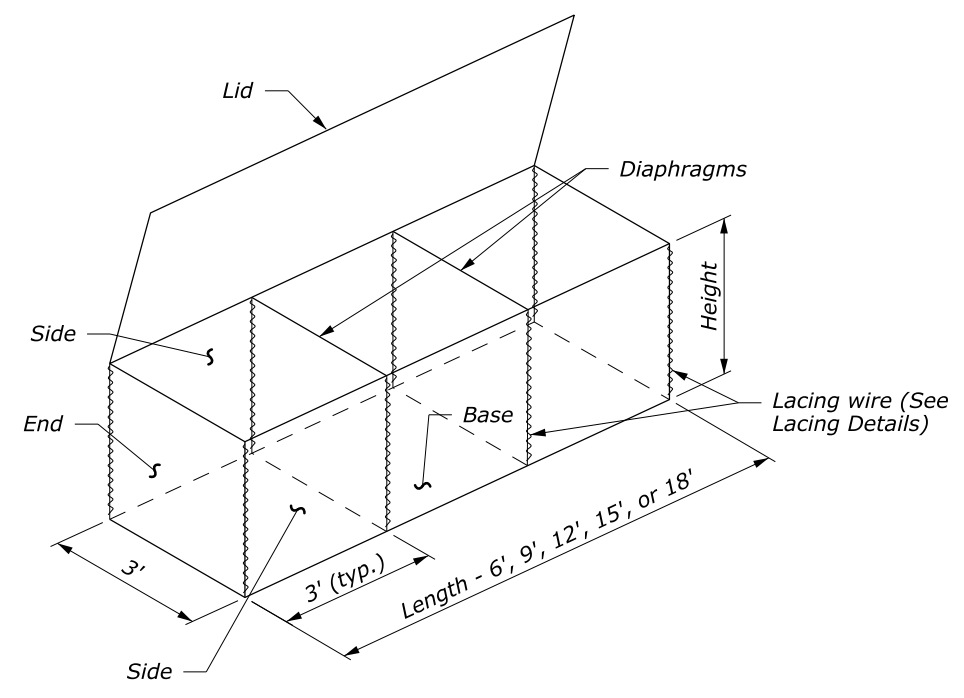


ALL END GABION CELLS



ALL INTERIOR GABION CELLS

TYPICAL STIFFENERS



TYPICAL ASSEMBLED GABION BASKET

GABION BASKET NOMINAL SIZES AND CAPACITY				
Size Code Letter	Size in feet		Diaphragm Partitions	Capacity (CUYD)
	Length	Height		
A	6	3	1	2
B	9	3	2	3
C	12	3	3	4
X	15	3	4	5
Y	18	3	5	6

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

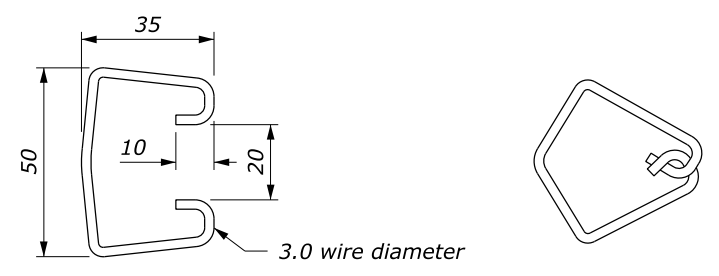
U.S. CUSTOMARY DETAIL

GABION FACED WALL

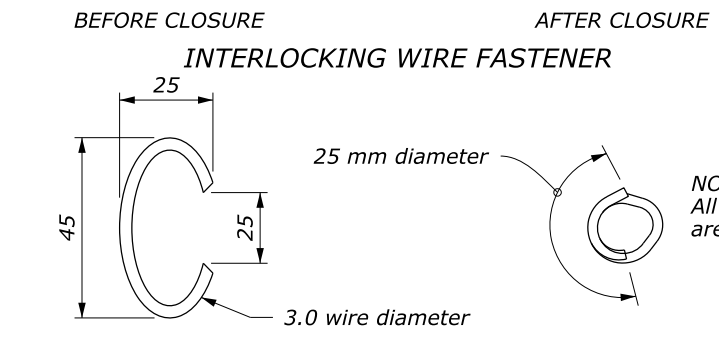
DETAIL APPROVED FOR USE --/---

REVISID: 9/2011
DRAFT: 9/2011

DETAIL
W253-2

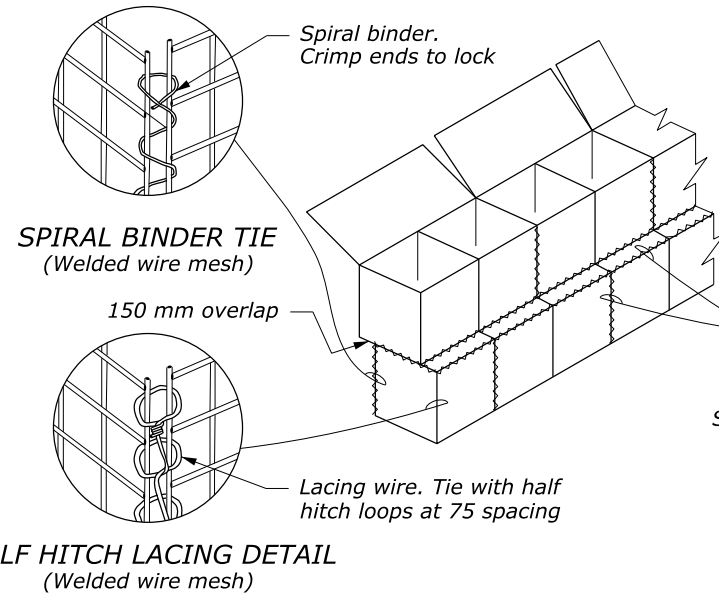
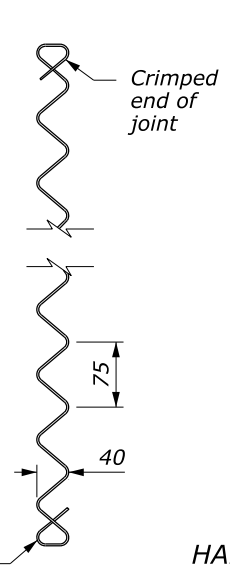


NOTE:
All dimensions
are nominal



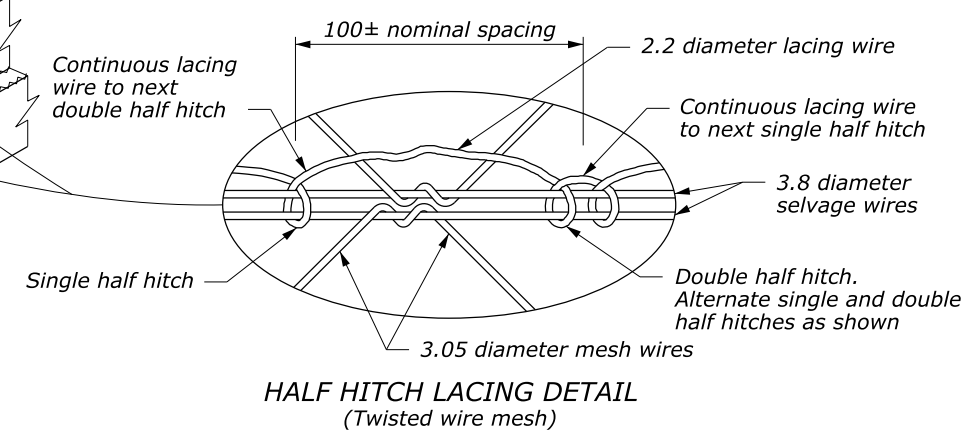
NOTE:
All dimensions
are nominal

**3.8 mm DIAMETER
SPIRAL BINDER**



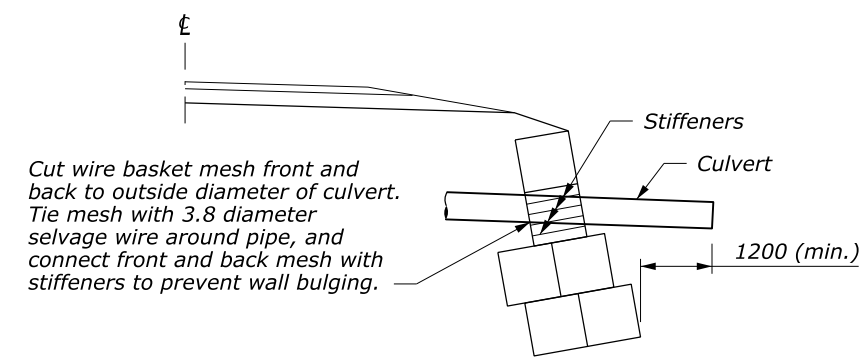
NOTE:

1. Dimensions without units are millimeters.

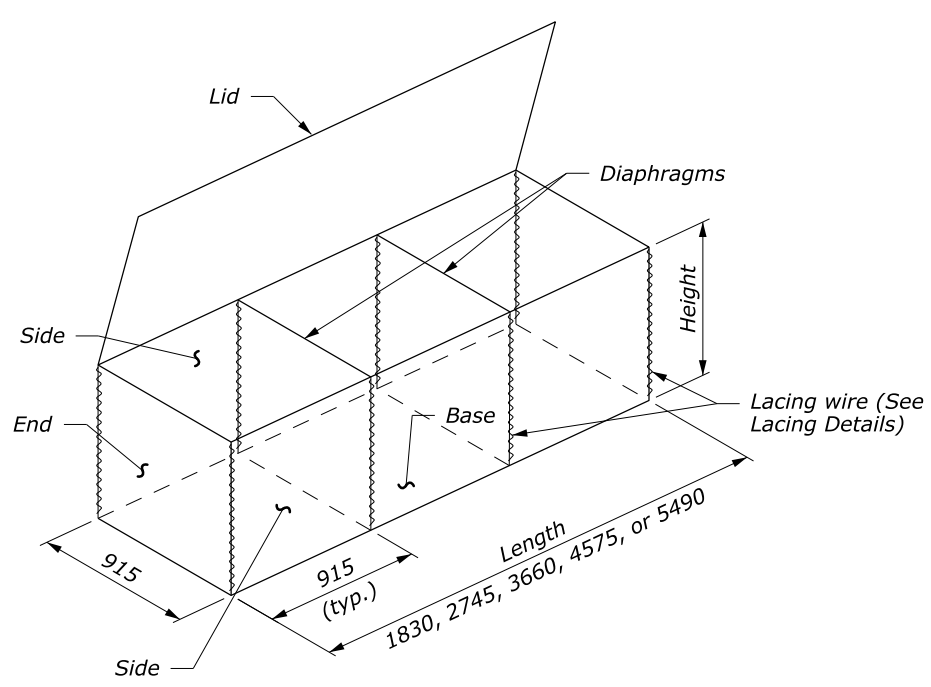


TYPICAL INSTALLATION GABION BASKETS

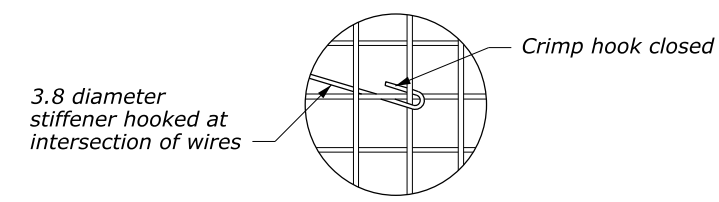
**OVERLAPPING RING WIRE FASTENER
ALTERNATE TYING FASTENERS**



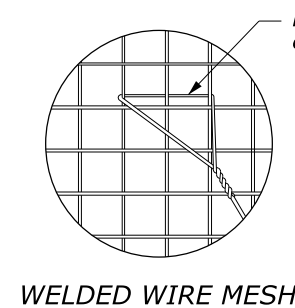
**TYPICAL CULVERT INSTALLATION
THROUGH GABION WALL**



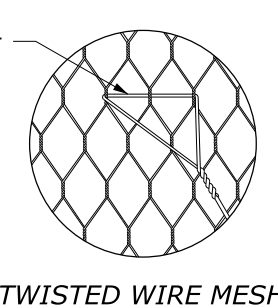
TYPICAL ASSEMBLED GABION BASKET



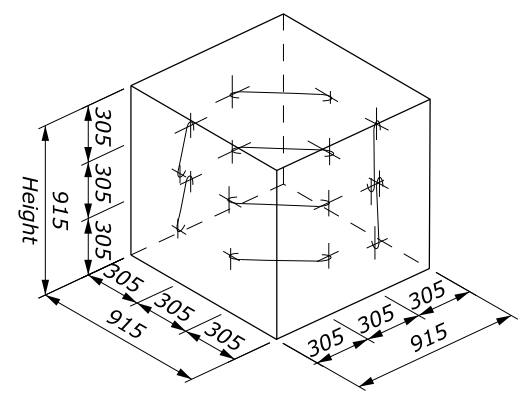
3.8 diameter
stiffener hooked at
intersection of wires



WELDED WIRE MESH

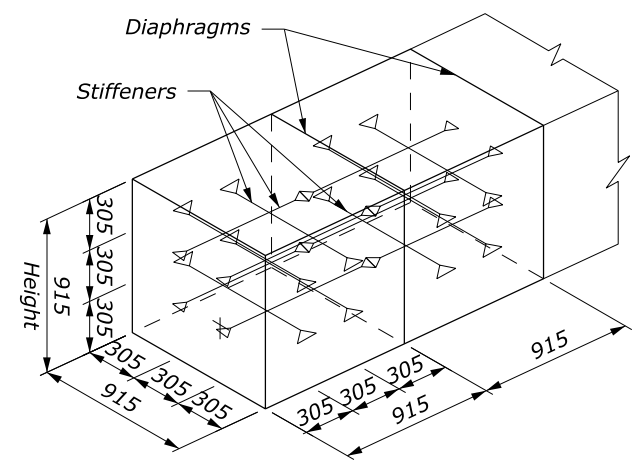


TWISTED WIRE MESH

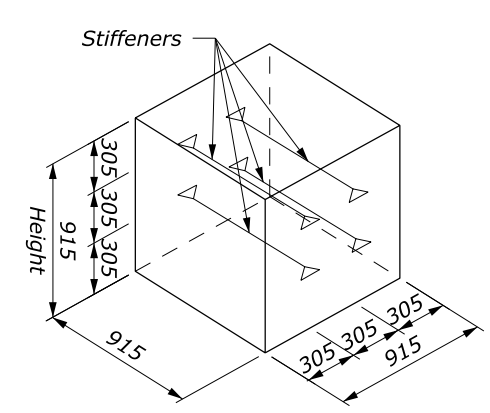


**ALL GABION CELLS
OPTIONAL STIFFENERS
WELDED WIRE GABION BASKET**

Size Code Letter	Size in meters		Diaphragm Partitions	Capacity m ³
	Length	Height		
A	1.83	0.915	1	1.5
B	2.75	0.915	2	2.3
C	3.66	0.915	3	3.1
X	4.58	0.915	4	3.8
Y	5.49	0.915	5	4.6



ALL END GABION CELLS



ALL INTERIOR GABION CELLS

TYPICAL STIFFENERS

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

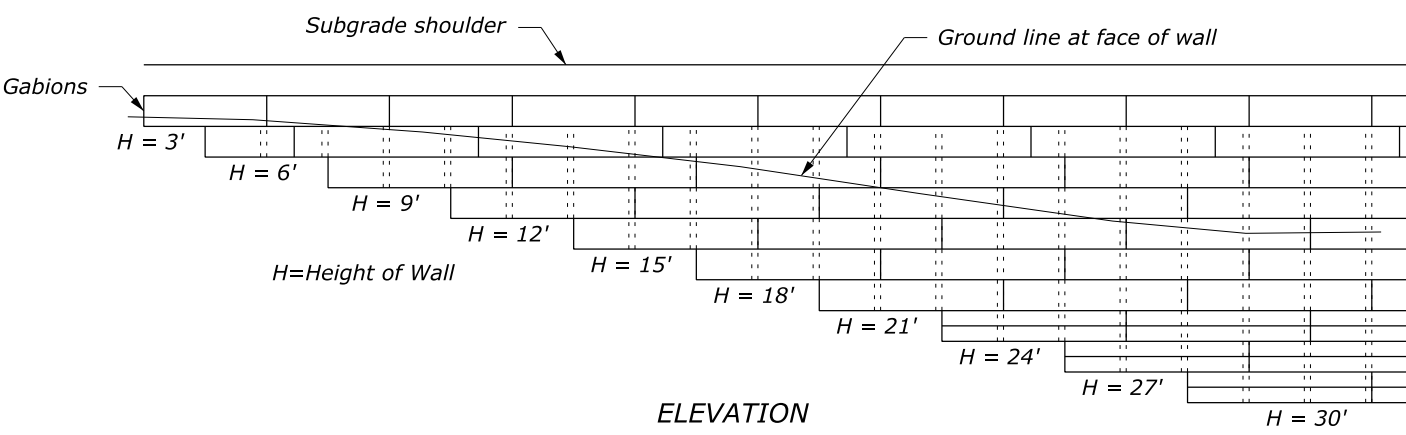
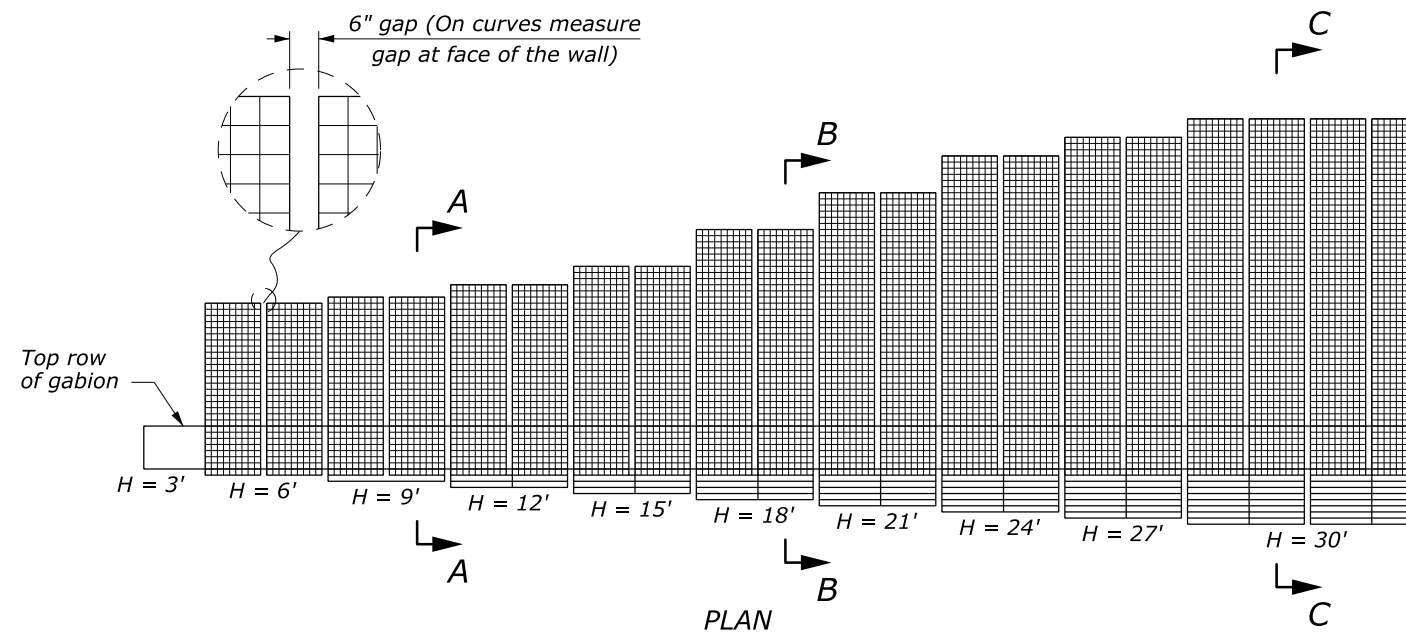
METRIC DETAIL

GABION FACED WALL

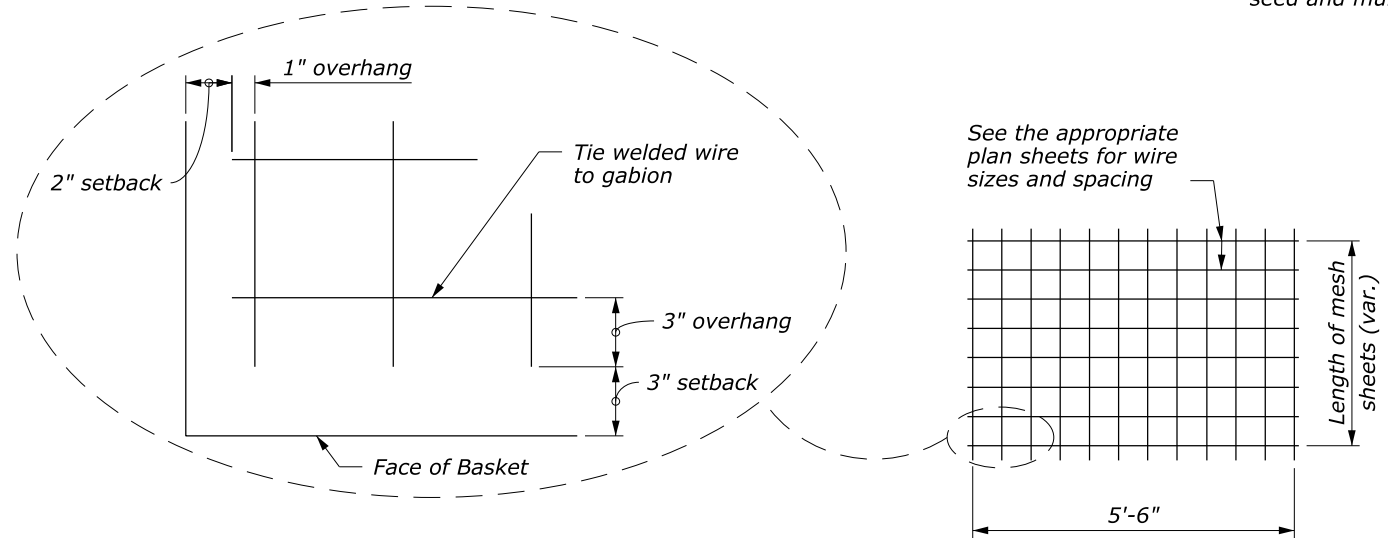
DETAIL APPROVED FOR USE --/----

REVISID: 9/2011
DRAFT:

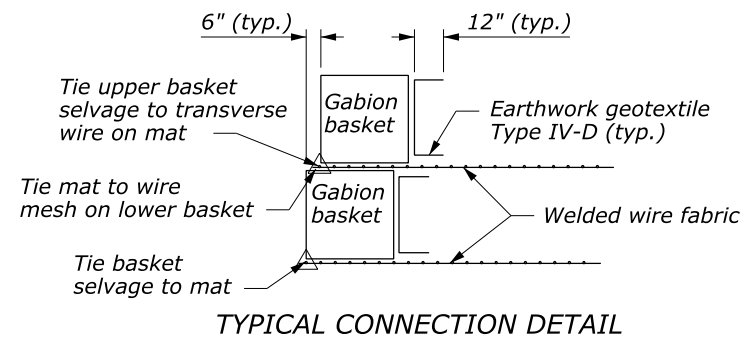
DETAIL
WM253-2



TYPICAL GABION WALL

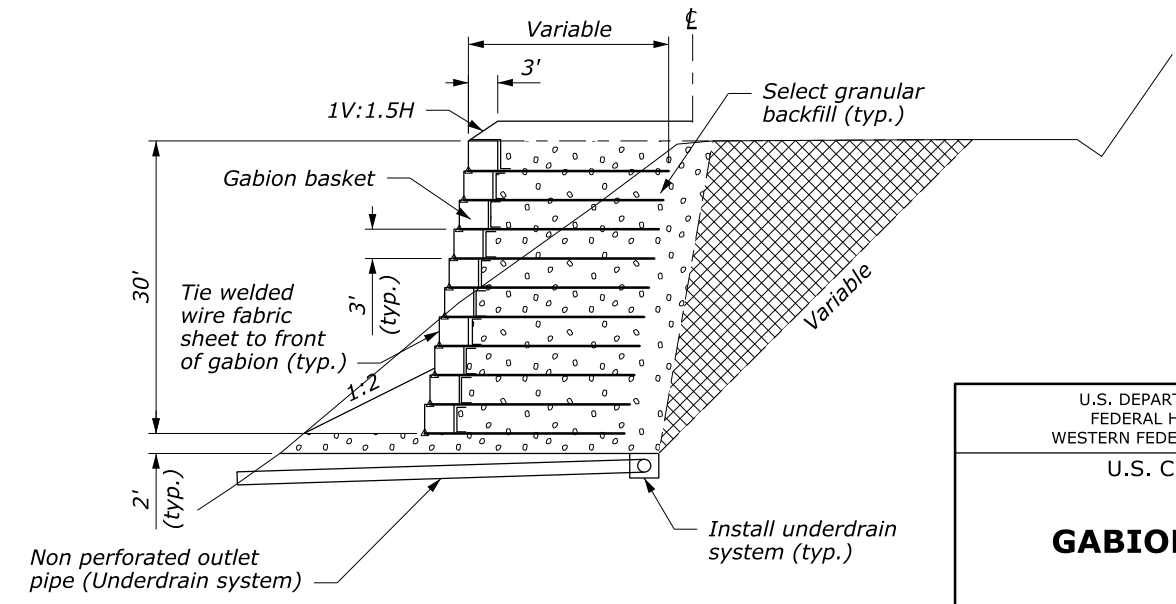
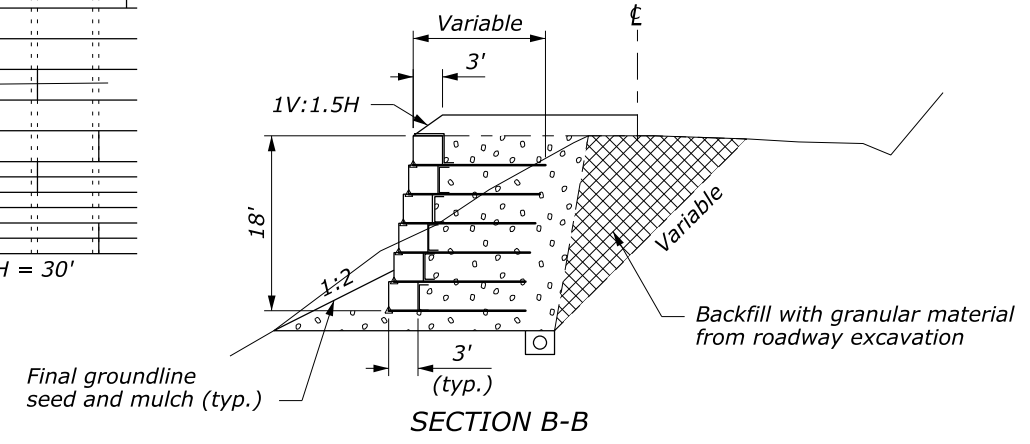
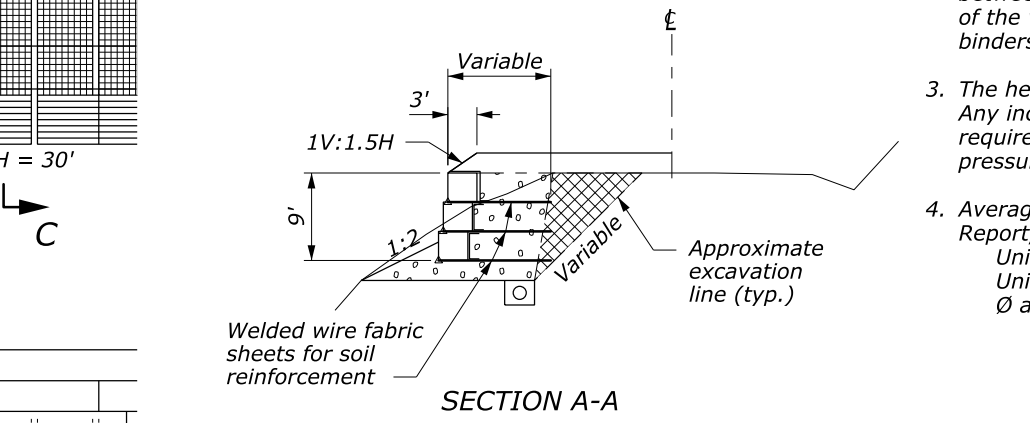


WELDED WIRE FABRIC SHEETS FOR SOIL REINFORCEMENT



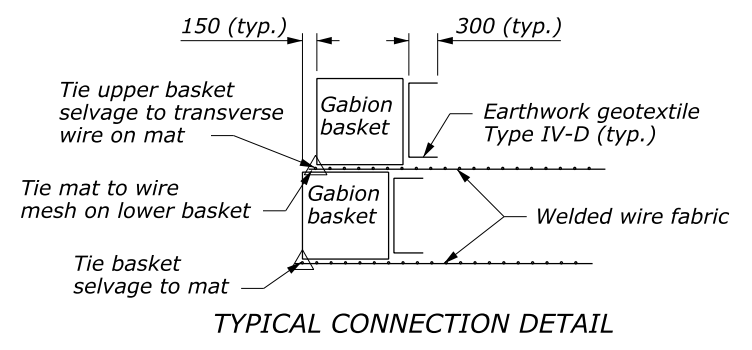
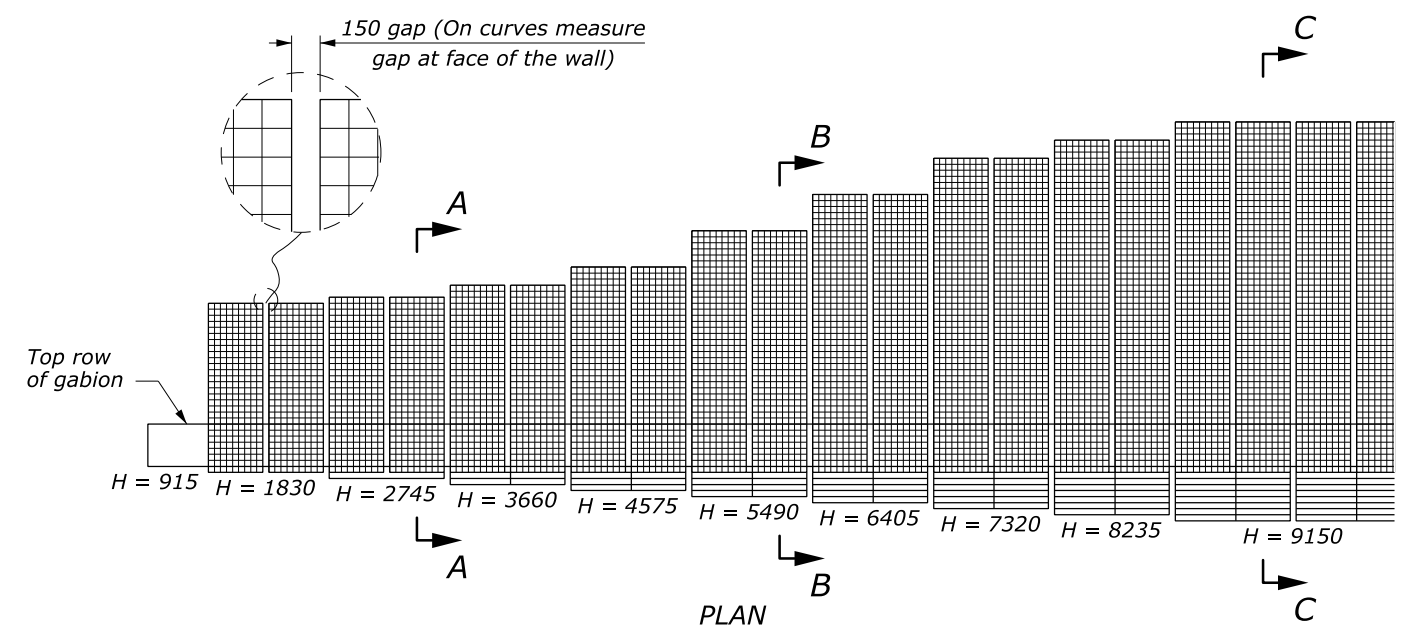
NOTE:

1. The welded wire fabric sheets vary in length within each wall. The height (H) of the vertical face of the wall determines the length of the welded wire fabric for the entire section. See other plan sheets for fabric lengths, wire sizes and spacing and number of mats. Where the wall construction requires the width of the welded wire fabric sheets to be less than 5.5 feet, the fabric wire may be field cut to fit. Cut fabric at center of mesh of welded wire fabric sheets.
2. Place layers of welded wire fabric sheets with 6" gaps between sheets. The 6" gaps are measured at the face of the wall. Connect the welded wire fabric sheets with spiral binders or tie wire to the front edge of each gabion basket.
3. The heights and quantities are subject to field adjustment. Any increase in wall heights over those shown on the plans require investigation to determine that the safe bearing pressure is not exceeded.
4. Average design assumption values. See the Geotechnical Report, if available, for site specific values.
 Unit weight of backfill material 125 pcf
 Unit weight of filled gabions is 105 pcf
 ϕ angle = 35° for backfill material

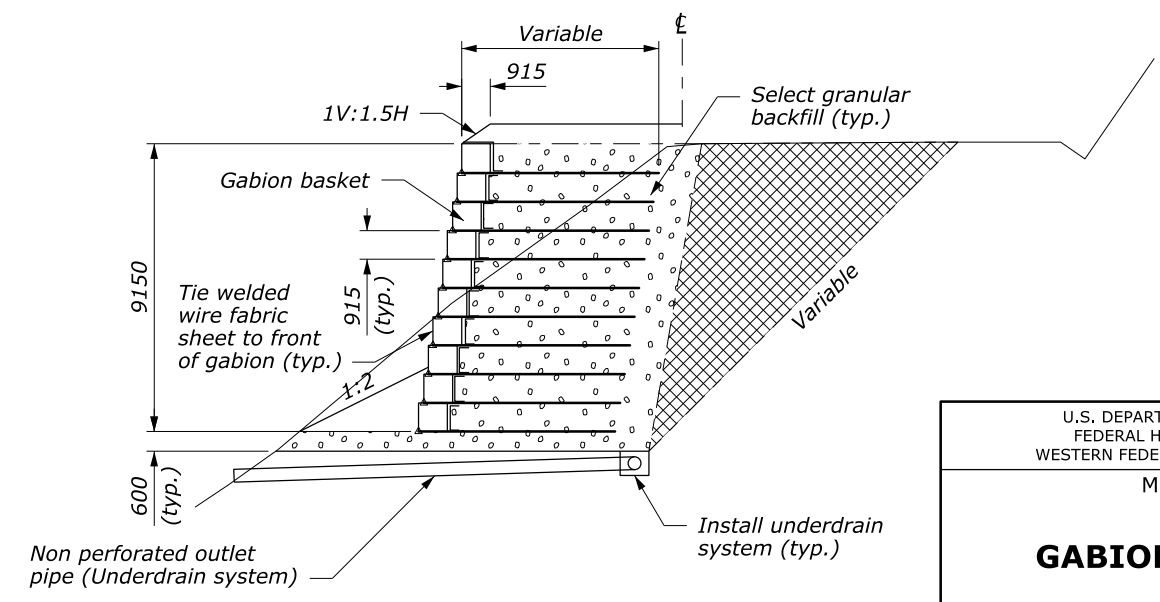
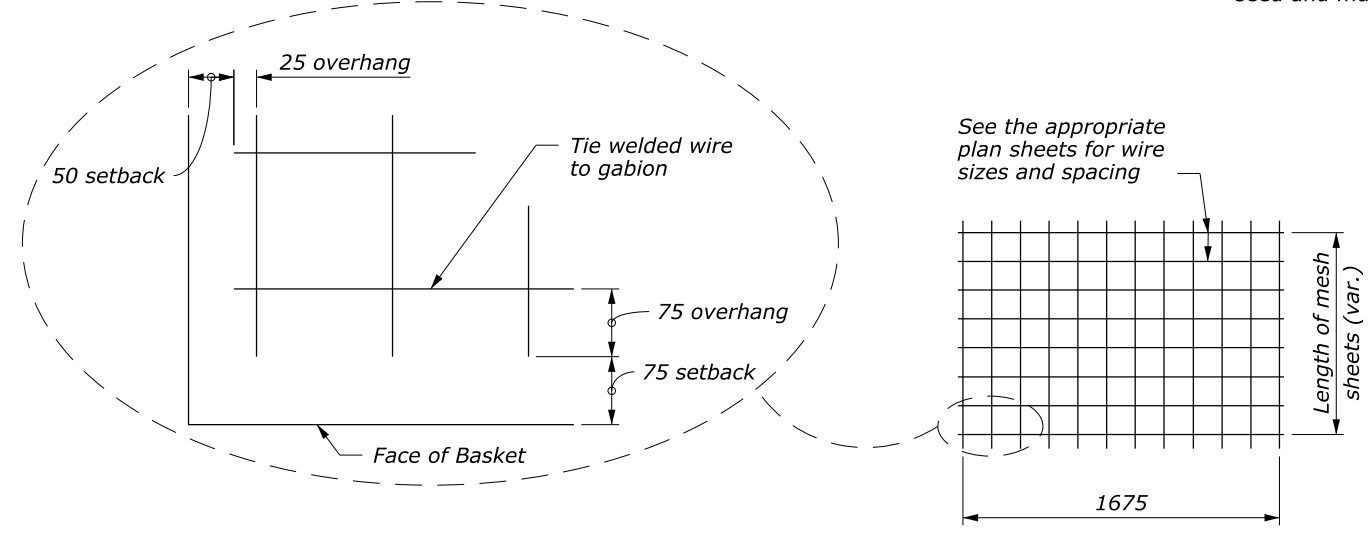
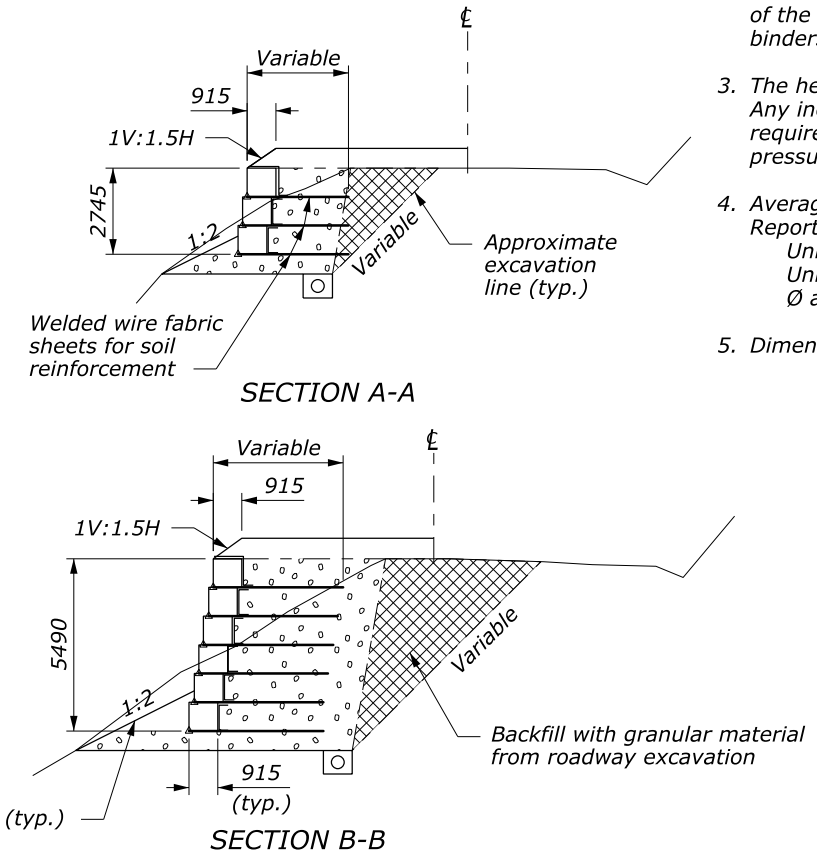
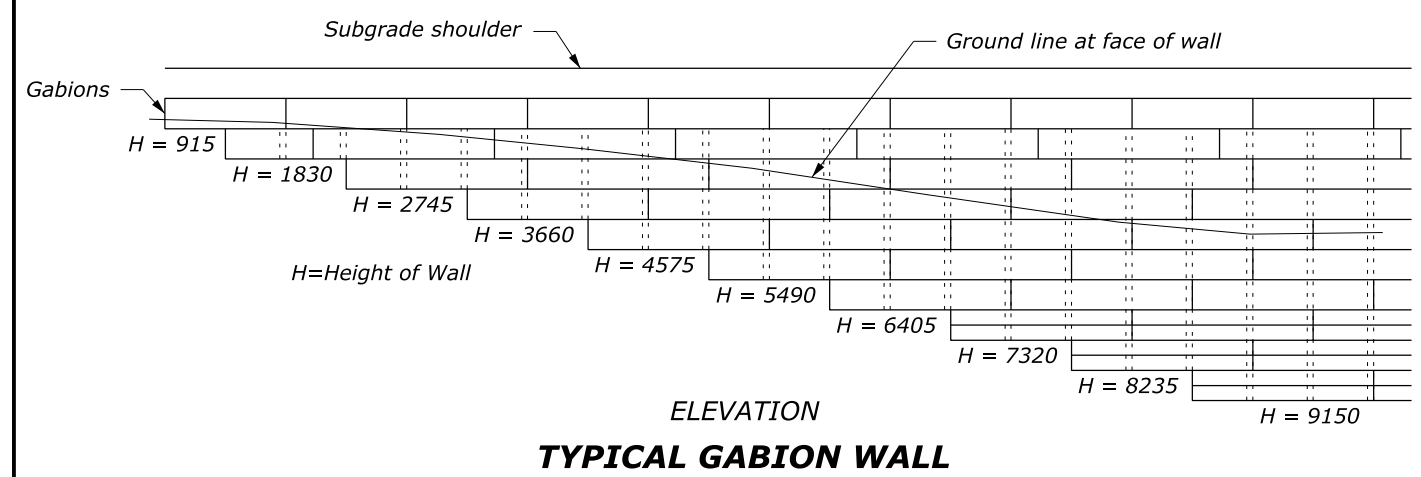


NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
GABION FACED WALL	
DETAIL APPROVED FOR USE --/---	DETAIL
REVISED: DRAFT: 9/2011	W253-3



- NOTE:**
1. The welded wire fabric sheets vary in length within each wall. The height (H) of the vertical face of the wall determines the length of the welded wire fabric for the entire section. See other plan sheets for fabric lengths, wire sizes and spacing. Where the wall construction requires the width of the welded wire fabric sheets to be less than 1650 mm, the fabric wire may be field cut to fit. Cut fabric at center of mesh of welded wire fabric sheets.
 2. Place layers of welded wire fabric sheets with 150 mm gaps between sheets. The 150 mm gaps are measured at the face of the wall. Connect the welded wire fabric sheets with spiral binders or tie wire to the front edge of each gabion basket.
 3. The heights and quantities are subject to field adjustment. Any increase in wall heights over those shown on the plans require investigation to determine that the safe bearing pressure is not exceeded.
 4. Average design assumption values. See the Geotechnical Report, if available, for site specific values.
Unit weight of backfill material 20.8 kN/m³
Unit weight of filled gabions is 17.6 kN/m³
Ø angle = 35° for backfill material
 5. Dimensions without units are millimeters.



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

METRIC DETAIL

GABION FACED WALL

DETAIL APPROVED FOR USE --/----

REVISID: 9/2011

DRAFT: 9/2011

DETAIL WM253-3

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