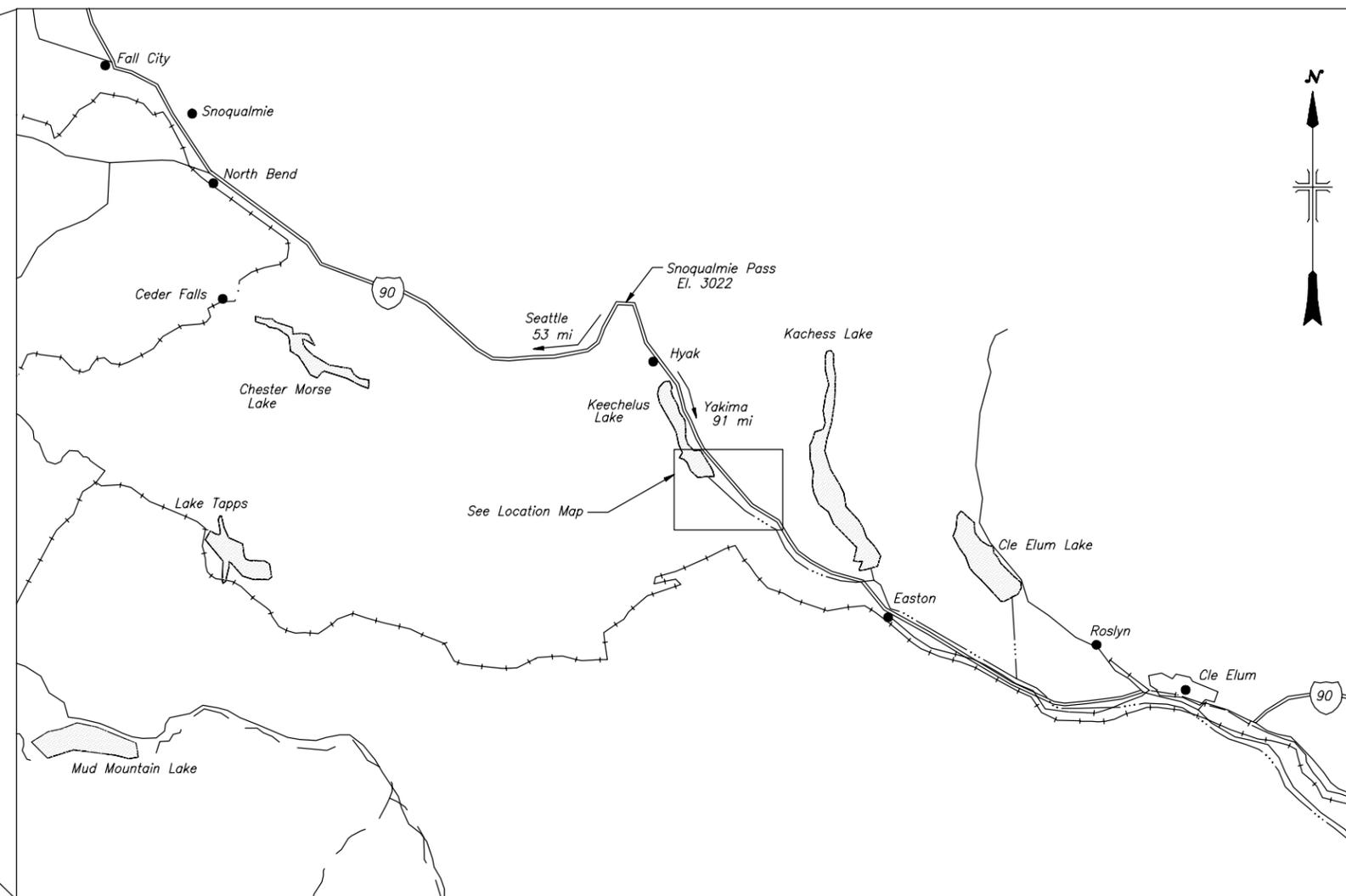
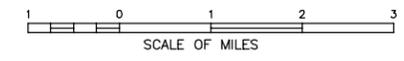




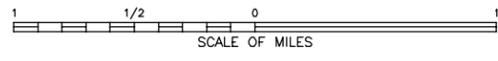
KEY MAP



VICINITY MAP



LOCATION MAP



LEGEND

- Interstate Highway
- Railroad
- River/Creek
- Paved road
- Unpaved road

Additional data that may be shown:
 County or counties in which feature is located
 Township and range lines
 Latitudinal and longitudinal lines
 Source of map

DATE AND TIME PLOTTED: AUGUST 28, 2013 11:59 AM
 PLOTTED BY: COWALSH
 CAD SYSTEM: MicroCAD 19.0a
 CAD FILENAME: CIVIL - FIGURE 18.DWG

ALWAYS THINK SAFETY

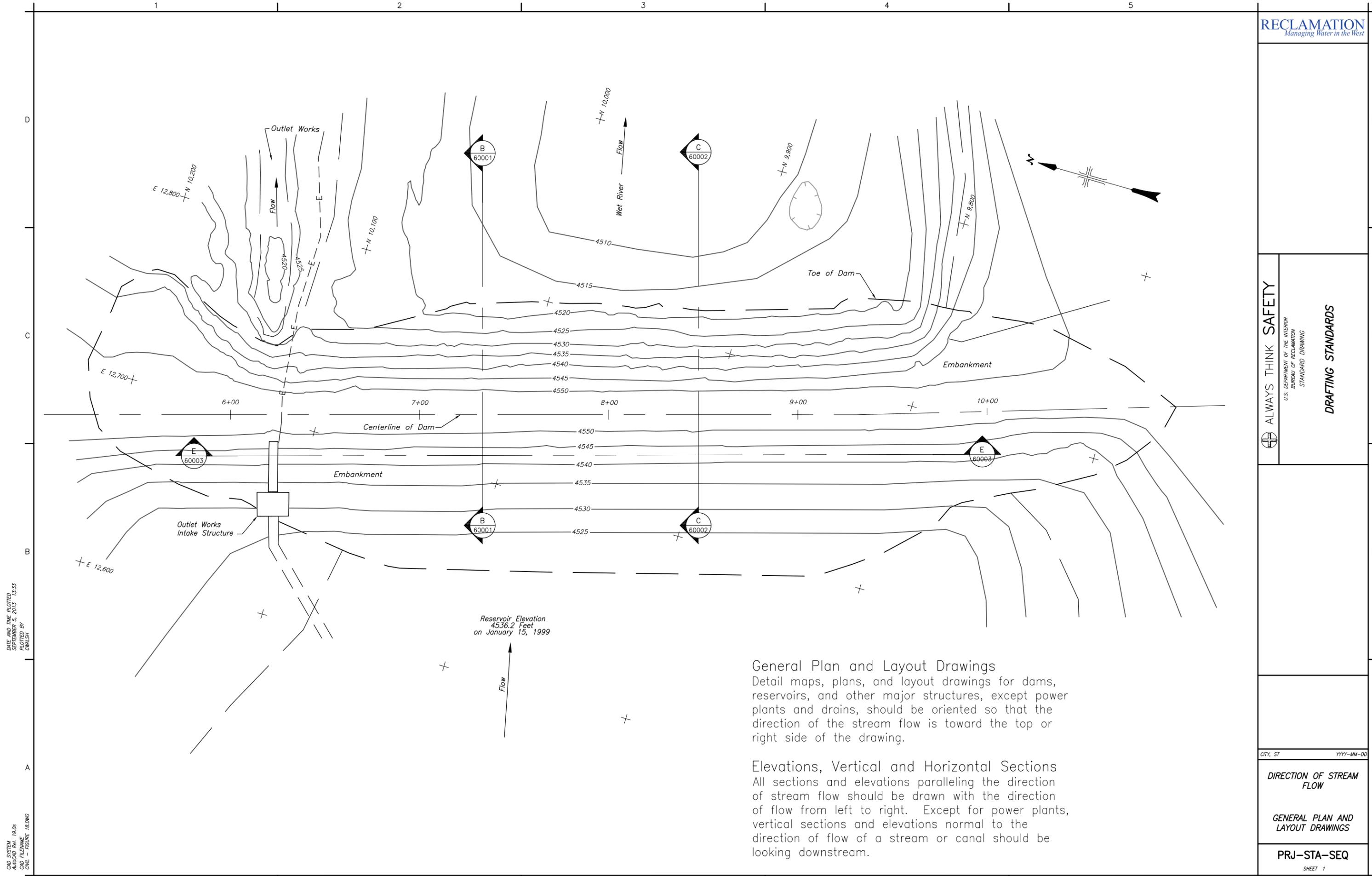
U.S. DEPARTMENT OF THE INTERIOR
 BUREAU OF RECLAMATION
 STANDARD DRAWING

DRAFTING STANDARDS

CITY, ST YYYY-MM-DD

LOCATION MAP

PRJ-STA-SEQ
 SHEET 1



DATE AND TIME PLOTTED:
SEPTEMBER 5, 2013 13:33
PLOTTED BY:
COWALSH

CAD SYSTEM:
AutoCAD PLOT 19.0a
CAD FILENAME:
CIVIL - FIGURE 19.DWG

General Plan and Layout Drawings
Detail maps, plans, and layout drawings for dams, reservoirs, and other major structures, except power plants and drains, should be oriented so that the direction of the stream flow is toward the top or right side of the drawing.

Elevations, Vertical and Horizontal Sections
All sections and elevations paralleling the direction of stream flow should be drawn with the direction of flow from left to right. Except for power plants, vertical sections and elevations normal to the direction of flow of a stream or canal should be looking downstream.

ALWAYS THINK SAFETY

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
STANDARD DRAWING

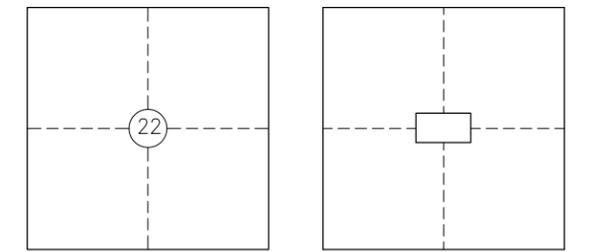
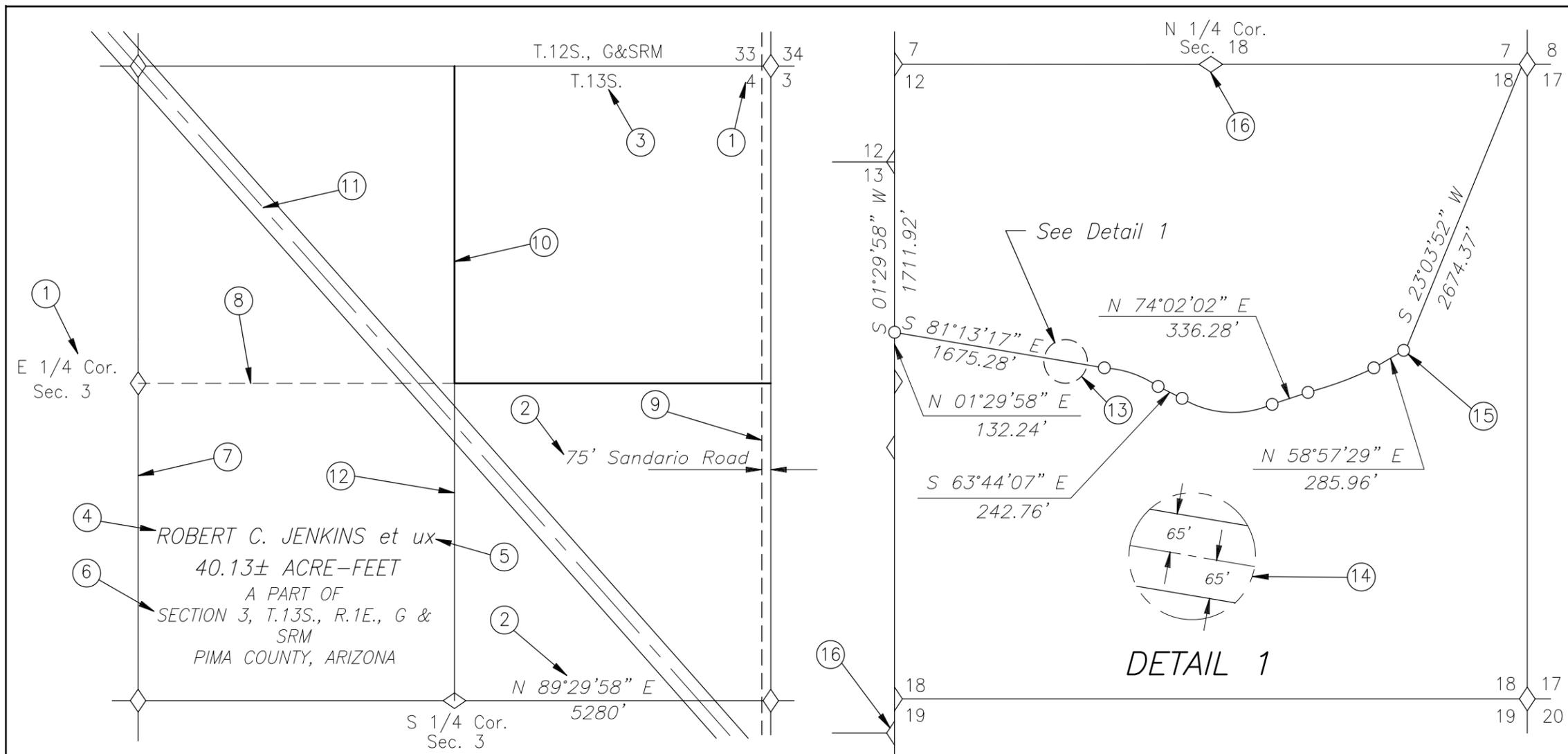
DRAFTING STANDARDS

CITY, ST YYYY-MM-DD

DIRECTION OF STREAM FLOW

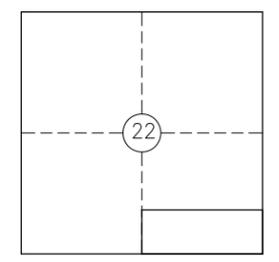
GENERAL PLAN AND LAYOUT DRAWINGS

PRJ-STA-SEQ
SHEET 1



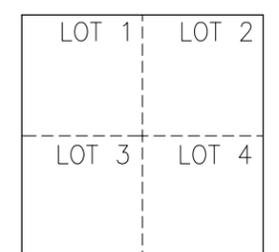
SECTION 22
SECTION NUMBER

The "Key Map" indicates the section with a circled number, place in center. If a land parcel lies in this area, it is acceptable to place the number below the key map as shown on the example above right. Upper case lettering, 0.100" high light lineweight.



OWNERSHIP

In an effort to avoid unnecessary clutter and duplication, keep ownership lines in the key map whenever possible. See example above.



LOT

Lot labels heights are 0.100", upper case, light lineweight. Lot numbers – should be numerals (not spelled out). Unless otherwise specified, place "LOT" in the upper right hand corner.

STANDARD TEXT SIZES, LINE WORK AND SYMBOLS

- ① Section corners and quarter corners text heights are 0.100", vertical, upper and lower case, light lineweight (.010"/.25mm).
- ② Notes, bearings and distances text heights are 0.10", sloped, upper and lower case, light lineweight (.010"/.25mm). Show bearing labels above and distances labels below the line they call out.
- ③ Township and range information text heights are 0.100", vertical, uppercase light lineweight (.010"/.25mm).
- ④ Owner name text height is 0.120", sloped, upper case, medium lineweight (.014"/.35mm).
- ⑤ The terms "et ux" (and spouse) and "et al" (and others) text heights are 0.120", sloped, lower case, medium lineweight (.014"/.35mm).
- ⑥ Location information text height is 0.100", sloped, upper case, light lineweight (.010"/.025mm).
- ⑦ Section lines should be medium weight (.014"/.35mm).
- ⑧ Quarter section lines should be light weight (010"/.25mm).
- ⑨ Lines to indicate a road should be medium weight (.014"/.35mm).
- ⑩ The take line should be heavy weight (.020"/.50mm).
- ⑪ Centerlines should be light weight (.010"/.25mm).
- ⑫ Lines showing ownership should be medium weight (.014"/.35mm).
- ⑬ Circle surrounding detail is dashed line, medium line weight, see Figure 13. Text height is 0.120", light lineweight (.010"/.25mm).
- ⑭ Large circle used to show detail is a minimum of 1" in diameter. Text height is 0.080", light lineweight (.010"/.25mm).
- ⑮ Circles showing points are 3/32" in diameter.
- ⑯ Diamonds indicate found corners and are 1/8" x 3/16". One half diamonds indicate offset sections.

<i>LETTERING FOR MAPS</i>			
<i>PURPOSE</i>	<i>STYLE</i>	<i>HEIGHT</i>	<i>LINEWEIGHT</i>
<i>Contours, Stations, Railroads, Highways, Electric and Telephone Lines, Pipelines, Ditches, Canals, Trails, Dams, Mines, Levees, Bridges, Tunnels, Reservoirs, Ferries, etc.</i>	<i>LEROY*</i>	<i>.100"</i>	<i>.010" OR 0.25 MM</i>
<i>Dams, Reservoir Sites, Canals, Powerplants, etc.</i>	<i>LEROY*</i>	<i>.120"</i>	<i>.014" OR 0.35 MM</i>
<i>Township – Range – Section Numbers, Coordinates, Bench Marks, Stations</i>	<i>VLEROY**</i>	<i>.100"</i>	<i>.010" OR 0.25 MM</i>
<i>States, Counties, Cities, National Parks, Forests, Valleys, Mountain Ranges</i>	<i>VLEROY**</i>	<i>.175"</i>	<i>.020" OR 0.50 MM</i>
<i>Creeks, Springs</i>	<i>ITALIC***</i>	<i>.100"</i>	<i>.010" OR 0.25 MM</i>
<i>Rivers, Lakes, Oceans</i>	<i>ITALIC***</i>	<i>.120</i>	<i>.014" OR 0.35 MM</i>

- * Use slanted lettering on all public works (railroads, highways, roads, trails, dams, canals, structures, transmission lines, etc.).
- ** Use vertical lettering on all civil divisions, surveys and hypsographic features (countries, states, counties, cities, towns, townships, land grants, mountains, valleys, canyons, buttes, etc.).
- *** Use italic lettering on all hydrographic features (rivers, oceans, lakes, ponds, creeks, falls, rapids, marshes, etc.).

ROADS AND RELATED SYMBOLS

For Project and All General use maps

- Primary
- Secondary
- Trail

Roads for Special purpose maps

- Paved
- Improved
- Unimproved
- Proposed
- Railroad *
- Railroad - Double track *
- Railroad - In Street or Road *
- Bridge
- Culvert
- Tunnel
- State Highway System
- U.S. Highway System
- Interstate Highway

* Place on the name or the initials of the railroad on the drawing. Do not use the word railroad or railway.

COMMUNICATIONS

- Telephone Line
- Power and Phone Combined
- Buried Fiber Optic Line
- Buried Phone Line
- Buried Telemetry

UTILITIES

- Transmission Line
- Power and Phone Combined
- Pipe Line
- Buried Water Line
- Buried Sewer Line
- Buried Gas Line
- Buried Electrical Line

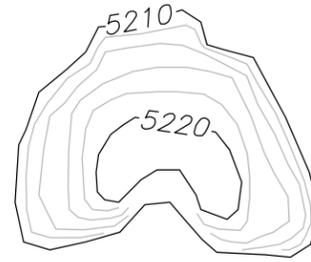
DRAINAGE AND PERTINENT WORKS

- River (Show waterline if sufficient offset)
- River Bank (Use when contours confuse or define river bank)
- Streams
- Intermittent streams
- Drain or Wasteway Channel
- Spring
- Dams
- Gauging Station
- Reservoir or Lake
- Reservoir Site
- Marsh or Swamp
- Lined Canal
- Canal
- Proposed Canal
- Flume
- Siphon
- Tunnel

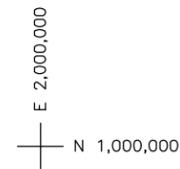
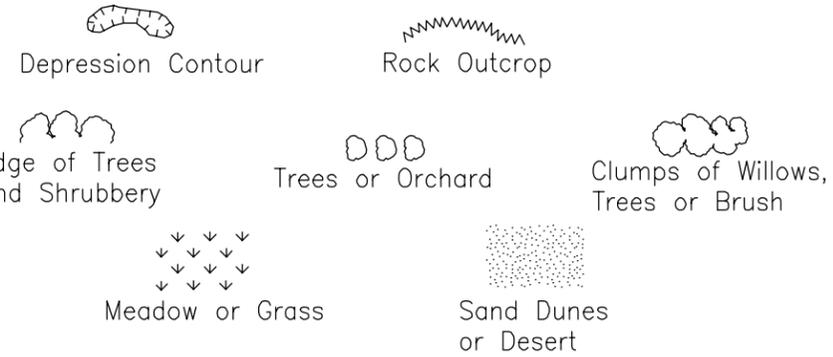
FENCES

- General Fence
- Barbed Wire Fence
- Chain Link Fence with Barbed Wire

TOPOGRAPHIC RELIEF



Index contours are heavy weight and labeled with the elevation. Text height should be .10". Intermediate contours are light weight and are not labeled unless the contour interval is irregular. Break intermediate contours if the area is congested.



State Plane Coordinate tick placement is dependent on the scale of the drawing. Drawing scale X (times) 5 = distance between ticks (e.g. 1"=20' 20'X5=250') or ticks every 250'. Label the coordinates along the top and left side of the drawing. Symbol and lettering should be light weight. Lettering should have a text height of .1" , vertical font and should be placed 1/8" from the edge of the symbol. The symbol size is 1/2 " x 1/2".

MISCELLANEOUS SYMBOLS

- Town
- Principal City
- Capital City
- Buildings (General)
- Town, City Village (Generalized)
- Detailed Street Layout
- Church
- School
- Wind Mill
- Well
- Saw Mill
- Airport
- Cemetery
- Mine, Quarry or Gravel Pit
- Shaft
- Camp Ground
- Corral
- Drill Hole or Auger Hole
- Test Pit

BOUNDARIES, MARKS, AND MONUMENTS

- Bench Mark
- U.S. Land Survey Corner found in field (describe)
- Triangulation Station
- Calculated Survey Corner (Used with Coord System Only)
- International Boundary
- State Line
- County Line
- Reservation Line
- Land Grant Line
- City Boundary
- Township Line
- Section Line
- Boundary Monument
- Basin Boundary or Right of Way

HYDROLOGIC MAP SYMBOLS

RECORDING	RECORDING AND NON-RECORDING	NON-RECORDING	
●	◐	○	Precipitation Station
●	◐	⊕	Precipitation Storage
●	◐	○	Precipitation & Temperature
●	◐	○	Precipitation & Evaporation
●	◐	○	Precipitation, Temperature & Evaporation
⊙	⊙	⊙	Complete Meteorological Station
		◇	Snow Survey Course
▲		△	River Gauge, Rated
▨		□	River Gauge, Stage Only
▨		▣	Reservoir or Lake Gauge

∨ Chemical quality analysis alone or at river or lake gauges, e.g., ▲, ▨.

⊥ Sediment load sampling alone or at river or lake gauges, e.g., ▲, ▣.

∠ Sanitary quality analysis alone or at river or lake gauges, e.g., ▲, ▨.

∠ Sanitary quality analysis involving discharge measurements where there is no gauge or at unrated gauge, e.g., ▣.

| Used in combination with complete meteorological station symbols to indicate radar equipment.

⚡ Used in combination with other symbols as ▲ to indicate telephonic or remote wired recorder.

⚡ Used in combination with other symbols as ● to indicate radio equipped gauge.

* Station in operation only a portion of the year as ▲*.

→→→→	Canal or Lateral
- - - - -	Proposed Canal
→ ○ ←	Manhole
→ ←	Pipe Relief or Interceptor Drain
→ ←	Pipe Collector Drain
- - - - -	Proposed Pipe Relief or Interceptor Drain
+ → ←	Proposed Pipe Collector Drain
→ ○ ←	Open Subsurface Drain
- - - - -	Proposed Open Subsurface Drain
→ ● ←	Open Surface Drain
- - - - -	Proposed Open Surface Drain
→ ←	Natural Drain
→ ←	Suboutlet (Creek)
→ ←	Outlet (River)

PROPOSED	COMPLETED	
○	●	Cased Hole
⊖	⊕	Uncased Hole
□	■	Test Pit
⊙	⊙	Irrigation Well
△	▲	Drainage Well
▣	▣	Other Wells (Use letter to designate type)
◇	◇	On Line Pumping Plant

All wells, holes and test pits should have identification number.

DRAINAGE MAP SYMBOLS

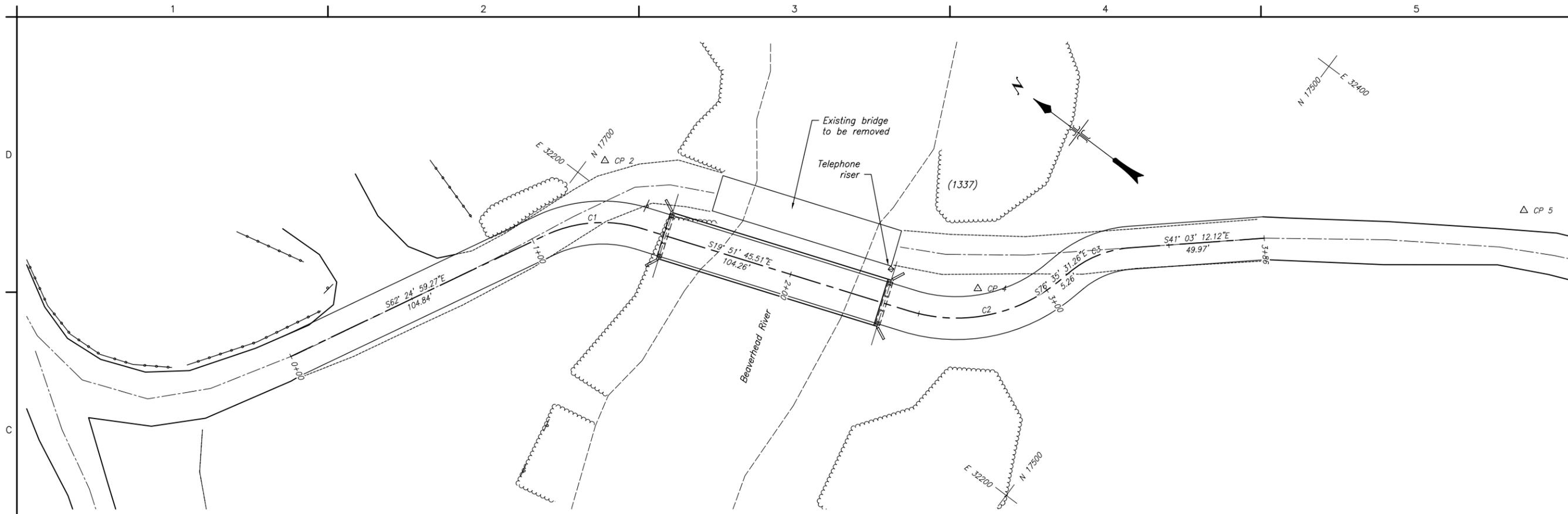
⬜	Limit of Groundwater Investigation
1820	Ground-Surface Contour
4225	Other Contours (Solid contours can be used when surface contour does not appear on same drawing.)

SYMBOLS AND CORRESPONDING COLORS FOR GROUNDWATER OR BARRIER DEPTH

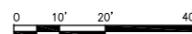
▨	First Interval Below Ground Surface (Red)
▨	Second Interval Below Ground Surface (Blue)
▨	Third Interval Below Ground Surface (Orange)
▨	Fourth Interval Below Ground Surface (Green)
⬜	Depth Greater Than Last Interval Used (No Color)

The depths for each interval should be shown on all maps.

HYDROLOGIC MAP AND DRAINAGE MAP SYMBOLS



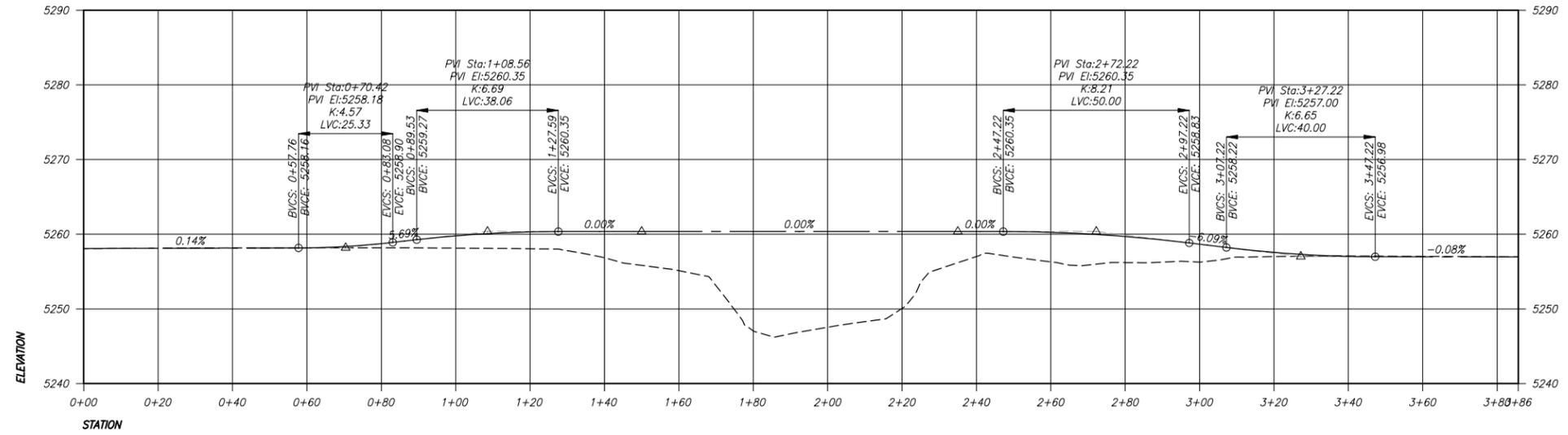
NEW ROAD CENTERLINE PLAN



2
67891
NEW ROAD CENTERLINE PLAN

CURVE TABLE: ALIGNMENTS

Curve #	R (ft)	T (ft)	L (ft)	Δ	P.C.	P.T.	P.I.	P.I. NORTHING	P.I. EASTING
C1	50.00	19.47	37.14	42.5538	1+04.84	1+41.97	1+24.31	17686.64	32191.00
C2	60.00	32.39	59.41	56.7294	2+46.23	3+05.64	2+78.63	17539.80	32244.05
C3	40.00	12.82	24.81	35.5387	3+10.90	3+35.71	3+23.72	17528.10	32293.14



NEW ROAD CENTERLINE PROFILE



ALWAYS THINK SAFETY

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
STANDARD DRAWING

DRAFTING STANDARDS

STATION NAME (CITY, ST) YYYY-MM-DD

PLAN AND PROFILE

DETAILS SHEET

PPRJ-STA-SEQ

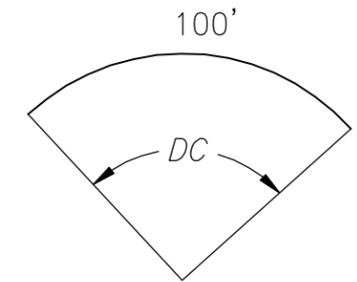
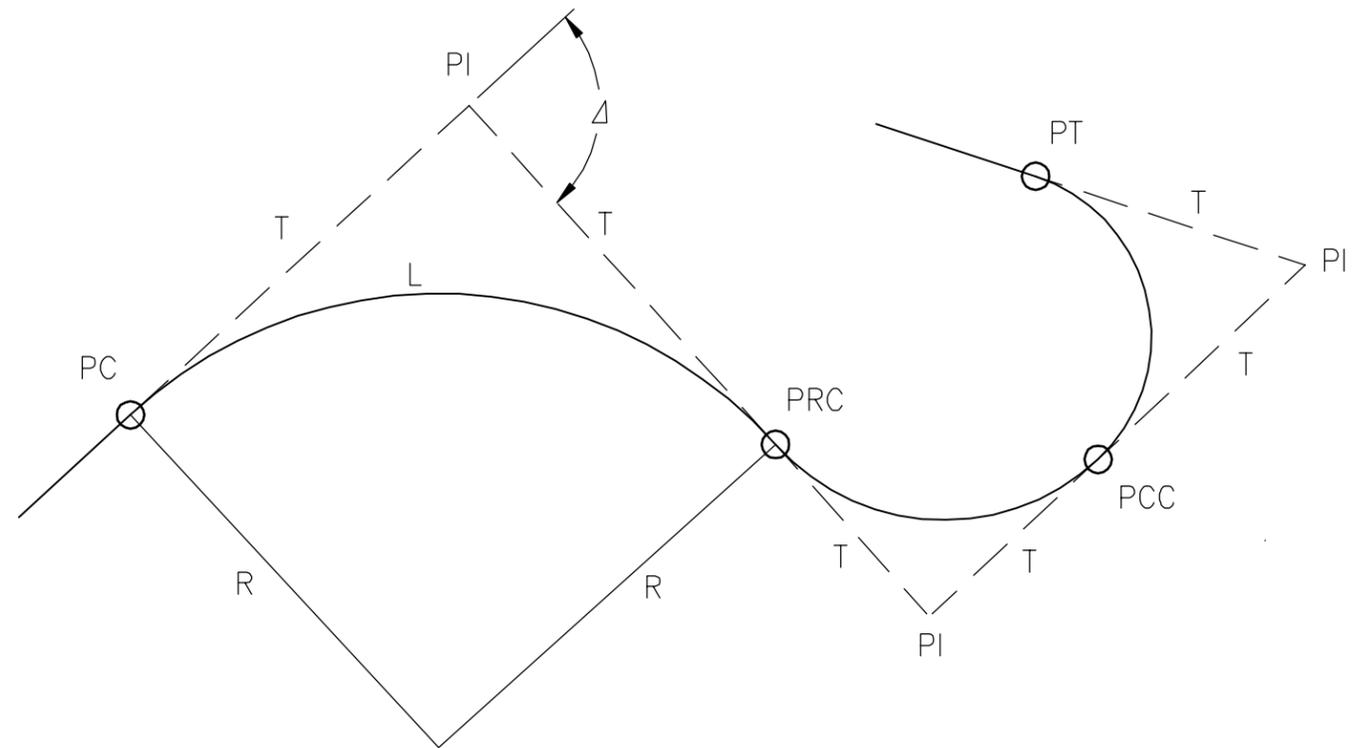
SHEET 1

DEFINITIONS OF PLAN AND PROFILE TERMS

HORIZONTAL CURVES

Horizontal Curve – A curve shown in the plan view.

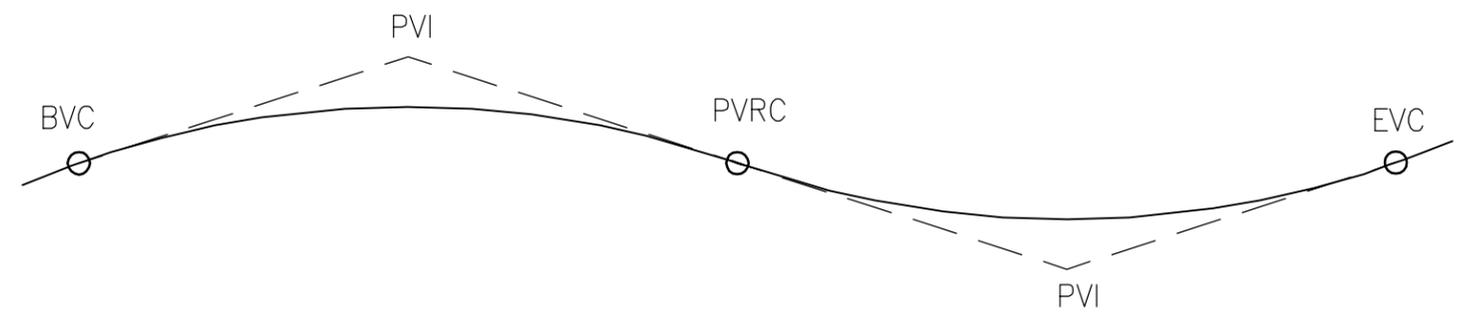
- PC Point of Curvature; beginning point of a horizontal curve.
- PT Point of Tangency; end point of a horizontal curve.
- PI Point of Intersection; the point at which two tangents to curve intersect.
- T Tangent; the distance from the PI to the PC or the PT (the distance between the PT of a curve and the PC of the next curve is also known as the tangent, but is not to be confused with the curve tangent).
- Δ Delta or deflection; the angle between the tangents, which is equal to the angle at the center of the curve.
- DC (D) Degree of Curve; the angle whose arc or chord on the given radius equals 100 feet.
- PCC Point of Compound Curvature; a point where the PT of a curve equals the PC of the next curve in the same direction.
- PRC Point of Reverse Curvature; the point where the PT of a curve equals the PC of the next curve in the opposite direction.
- L Length of Curve; length of the circular curve from PC to PT measured along its arc.
- R Radius of curve.
- AP Angle Point



VERTICAL CURVES

Vertical Curve – A curve shown in the profile view.

- BVC Beginning of vertical curve.
- BVCE Beginning of vertical curve elevation.
- BVCS Beginning of vertical curve station.
- EVC End of vertical curve.
- EVCE End of vertical curve elevation.
- EVCS End of vertical curve station.
- K
- LVC
- PVI Point of Vertical Intersection; the point at which the tangents intersect.
- PVCC Point of Vertical Compound Curvature; a point where the EVC of a curve equals the BVC of the next curve in the same direction.
- PVRC Point of Vertical Reverse Curvature; a point where the EVC of a curve equals the BVC of the next curve in the opposite direction.



ABBREVIATIONS

bf – bottom face	ff – far face	nr – near row
bl – bottom layer	fr – far row	ns – near side
br – bottom row	fs – far side	oc – on center
ec – each corner	if – inside face	of – outside face
ef – each face	ir – inside row	or – outside row
er – each row	ml – middle layer	tf – top face
es – each side	mr – middle row	tl – top layer
ew – each way	nf – near face	tr – top row

addl = additional

clr = clear

ctr = center or centers

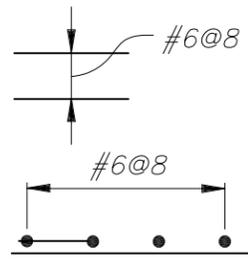
d_b = nominal diameter of reinforcing bar

eq sp = equally spaced, equal spaces

sp = space or spaces

uv = uniformly varying lengths of bars between lengths shown

SYMBOLS



Indicates a group of the same size bars equally spaced.

○ An open circle at the end of a bar indicates a bend with the bar turned away from the observer.

● A closed circle at the end of a bar indicates a bend with the bar turned towards the observer.

— Indicates a lapped splice, not a bend in the bar.

Concrete symbol is used with reinforcement when cutting thru a wall, when a window is cut to show reinforcement the concrete symbol is not shown.

DIMENSIONS

Dimensions are to the centerline of the bars except for embedment of hooks, which are dimensioned to the outside of the bar. Clear cover dimensions are marked "clr."

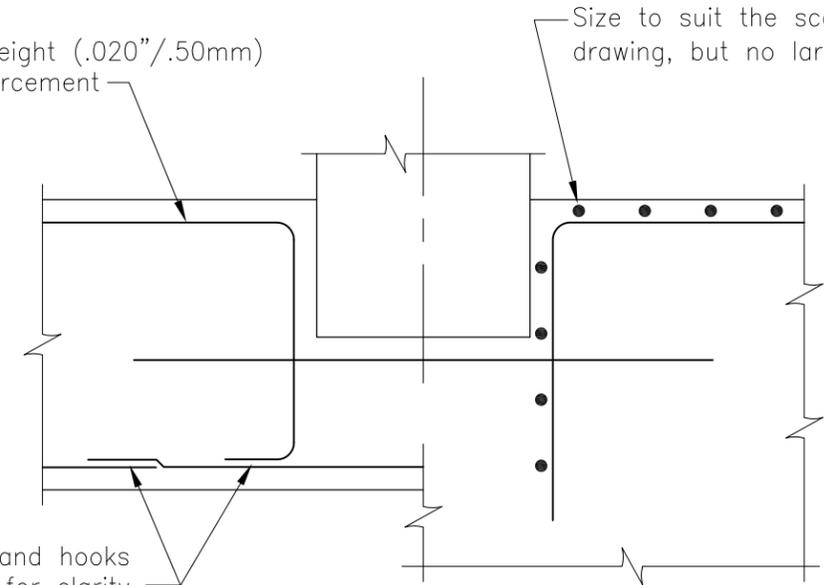
SPACING

The first and last bars in walls and slabs, stirrups in beams, and ties in columns are to start and end at a maximum of one half of the adjacent bar spacing.

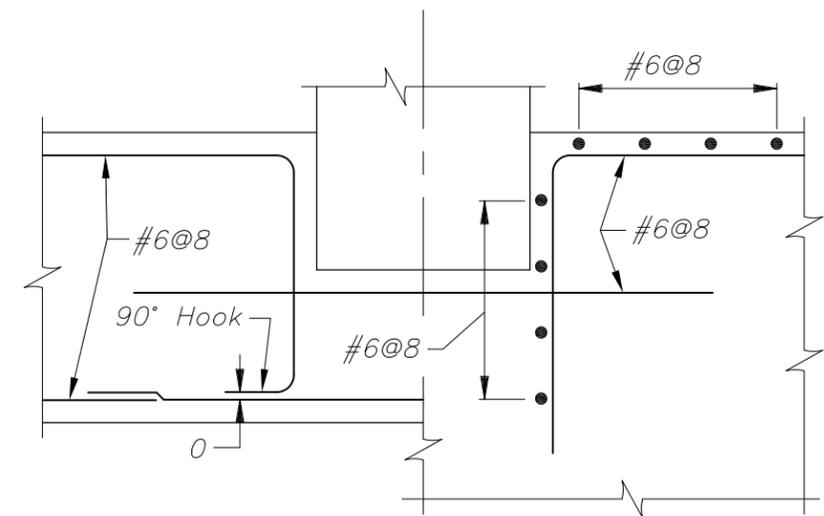
Heavy line weight (.020"/.50mm)
for all reinforcement

Size to suit the scale of the drawing,
but no larger than .10"

The gap for splices and hooks
may be exaggerated for clarity



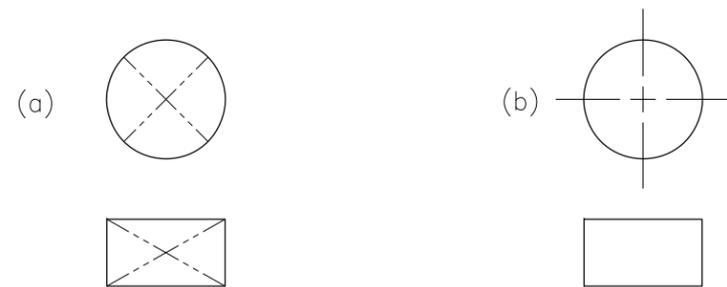
TYPICAL LINE WEIGHTS



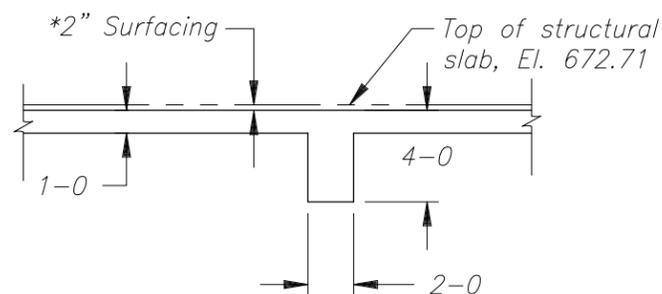
TYPICAL CALLOUT PLACEMENT

For general notes and minimum requirements
for detailing reinforcement, see Standard
Drawing 40-D-6263.

REINFORCEMENT ABBREVIATIONS,
SYMBOLS AND LINE WEIGHTS



Show open holes as in (a) to distinguish from recesses as shown in (b).



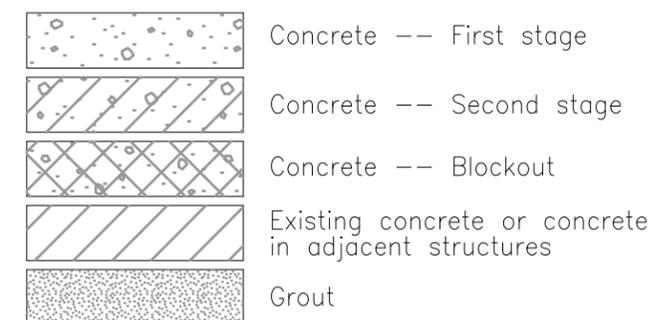
If a concrete floor surface is to receive an additional surfacing, show all dimensions to the unfinished surface as indicated above. Show elevation in feet to two decimal places.

ABBREVIATIONS

- bf – bottom face
- CJ – Construction joint
- CrJ – Contraction joint
- CtJ – Control joint
- ef – each face
- EJ – Expansion joint
- El. – Elevation
- ff – far face
- HP – High point
- LP – Low point
- MSN1 – Metal seal--Type N1
- MSN2 – Metal seal--Type N2
- MSZ – Metal seal--Type Z
- nf – near face
- OCJ – Optional construction joint
- SP – Sewer pipe
- tf – top face
- TW – Tail water
- VCJ – Vertical construction joint
- WP – Working point
- WS – Water surface, water stop
- WSA – Waterstop--Type A
- WSB – Waterstop--Type B
- WSD – Waterstop--Type D
- WSE – Waterstop--Type E
- WSF – Waterstop--Type F
- WSG – Waterstop--Type G
- WSH – Waterstop--Type H

CONCRETE SYMBOLS

The different concrete placements are indicated by the following symbols:



DIMENSIONS

All dimensions to a joint are to the centerline of the joint unless otherwise shown.

Dimensions to beams, columns, and walls are from reference lines or other control points.

Dimensions in parentheses () on plans are beam depths.

Beam and slab depths shall be measured from the top of the structural slab. Dimensions given for the depth of recesses are from the surface of the structural concrete.

Thickness' shown for walls and slabs placed against soil or rock are minimum dimensions.

UNITED STATES GOVERNMENT POWERPLANTS AND PUBLIC POWERPLANTS (NON FEDERAL)

See notes for Government owned plants other than the Bureau of Reclamation

TYPE OF PLANT	EXISTING	AUTHORIZED	POTENTIAL
HYDRO			
STEAM			
DIESEL			

PRIVATE POWERPLANTS

TYPE OF PLANT	EXISTING	AUTHORIZED	POTENTIAL
HYDRO			
STEAM			
DIESEL			

SUBSTATIONS

	EXISTING	AUTHORIZED	POTENTIAL
FEDERAL			
PUBLIC (NON FEDERAL)			
PRIVATE			

TRANSMISSION LINES

	EXISTING	AUTHORIZED	POTENTIAL
FEDERAL			
PUBLIC (NON FEDERAL)			
PRIVATE			

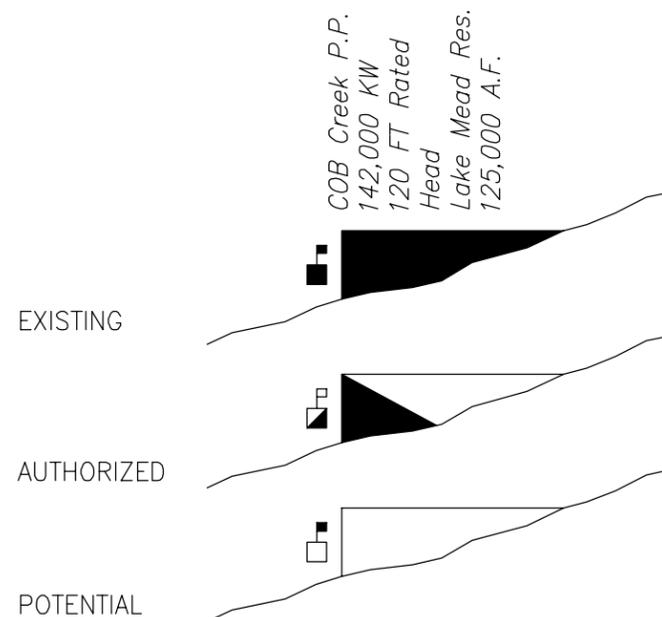
INTERCONNECTION



COMMUNICATION LINES



RESERVOIR PROFILES



NOTES

General maps for development shall be prepared at a scale of either 1:500,000, 1:1,000,000, or 1:2,500,000. Detail maps are to be of adequate scale. All maps should show state and county boundaries, principal cities and important towns, all important rivers, lakes and reservoirs and such other appropriate data necessary to its particular use.

All Government owned transmission lines shall be represented by heavy weight lines and all other nonfederal systems shall be represented by medium weight lines.

Government owned plants and transmission lines other than the Bureau of Reclamation shall be specifically identified by the following mark * and the name of the agency adjacent to the symbol.

For multicolored maps, for special purposes, the color standards used should conform to those specified in the instructions governing the map to be prepared, see Appendix D for standard colors.

To facilitate mapping of progressive development, the short dashed lines indicating potential should be of such length that two short dashes plus one space will equal one long dash thus advancing from potential to authorized by filling in every other space.

The line voltage in kilovolts should be indicated along the line and at all points of change of voltage indicate the standard voltage rating as follows: 2.3-6.9-13.8-23-34.5-46-69-115-138-161-196-230-345kv.

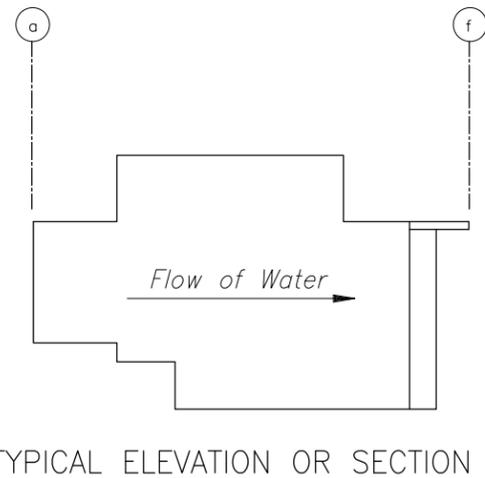
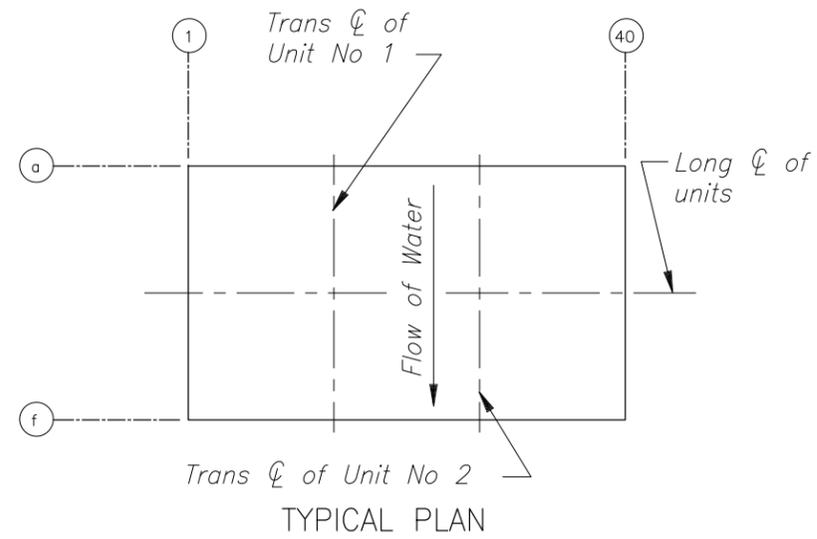
Where two numerals are used on the same line viz: 46/115 the first number indicates the operating voltage, the second number indicates the insulated or design voltage.

All powerplants and substations shall be identified either by name or number with accompanying estimated ultimate capacities in kilowatts. If numbers are used a reference table showing identification number, the name and estimated ultimate capacities in kilowatts shall be shown on the map.

Where the town and powerplants have the same name, show separately the location and name both the town and powerplant. Locate the powerplant by point of contact of the proper symbol with the stream.

Profile maps should show the stream, reservoir and powerplant locations, powerplant name, capacity in kilowatts, rated head in feet and reservoir name and capacity in acre feet.

ORIENTATION FOR POWERPLANT DRAWINGS



On powerplant work, orient all major plans and sectional elevations so that flow of water through the building will be from either the top or the left side of the drawing with the exception of the following elevations:

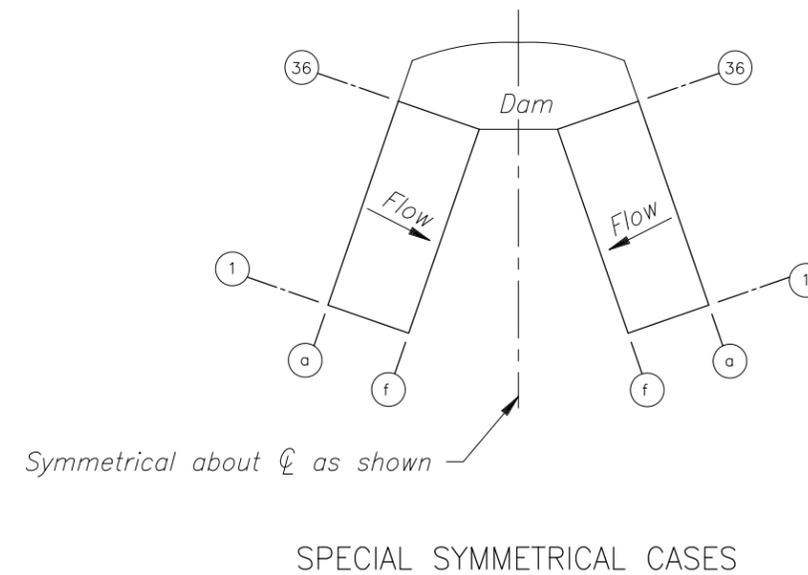
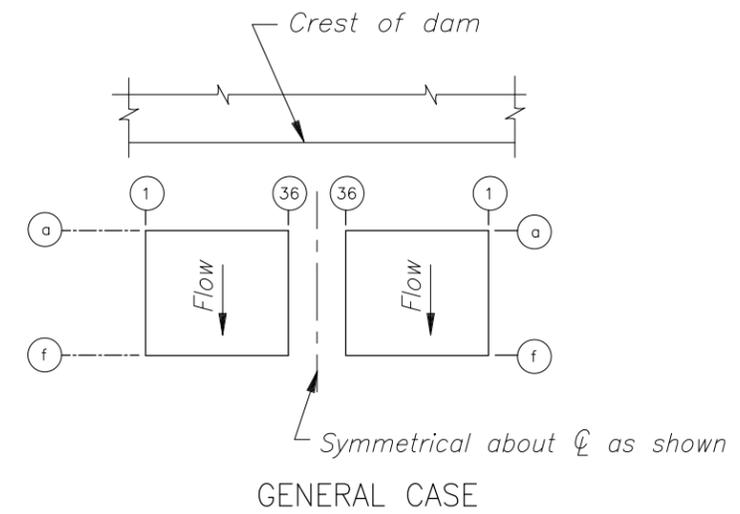
1. Two adjacent walls at an expansion joint.
2. Left end wall of building.
3. Tailrace wall (viewed from gallery side).

In general, reference line letters or numbers should read from left to right or top to bottom.

Numbering of units should follow the same order as the numbering of reference lines.

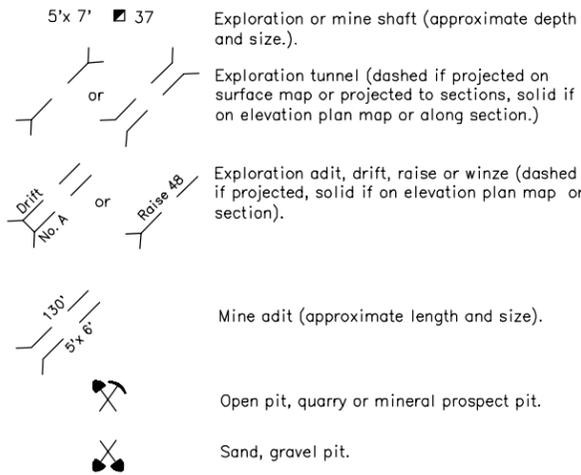
Pumping-generating plants shall be oriented similarly to powerplants.

ORIENTATION FOR IRRIGATION DRAINS

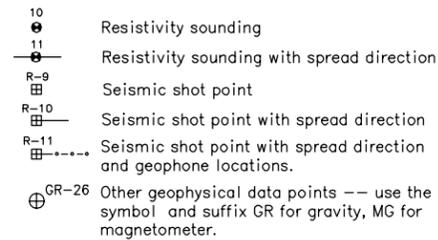


STREAM FLOW — ORIENTATION
AND DIRECTION FOR POWERPLANTS
AND IRRIGATION DRAINS

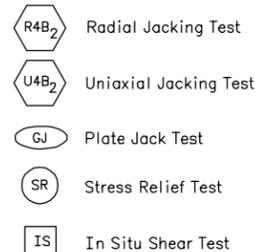
GEOLOGIC EXPLORATION OR MINING



GEOPHYSICAL DATA POINTS



EXAMPLES OF SYMBOLS FOR SPECIAL TESTS



SPECIAL PURPOSE SYMBOLS AND SUFFIXES FOR EXPLORATION HOLES

To emphasize or call visual attention on a drawing to special type of drilling or sampling, measurements (repeated water level readings), logging methods (gamma, resistivity logs) for completed work:

(a) Use the standard solid circle symbol supplemented with other markings of their choice, which will provide the desired visual emphasis on that particular map such as

(b) Use the standard solid circle with an appropriate prefix or suffix to the drill hole number such as; PR-106 for penetration resistance.

SUFFIX AND PREFIX SYMBOLS

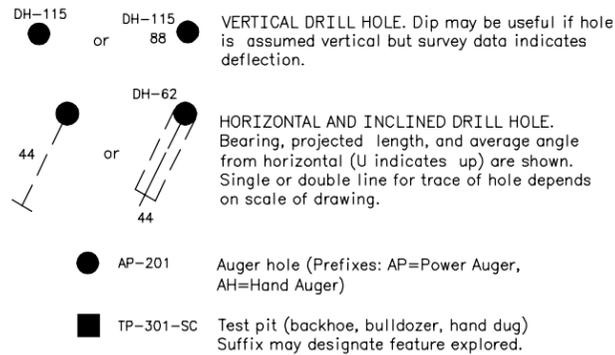
DH Drill hole	CH Churn Drill
SPT or PR Penetration Resistance	OW Observation Well
CP Cone Penetrometer	PZ Piezometer
VT Vane Test Hole	Examples:
CS Clam Shell	DH-103 (PR)
DC Dutch Cone	DN-103
PT Pitcher	PR-103 or SPT-197
DN Denison	DH-103-BS2
GP Geophysical	

(c) Combine methods "a" and "b"

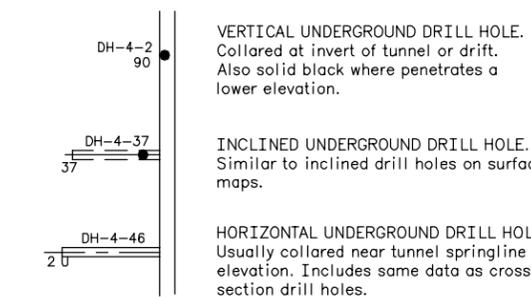
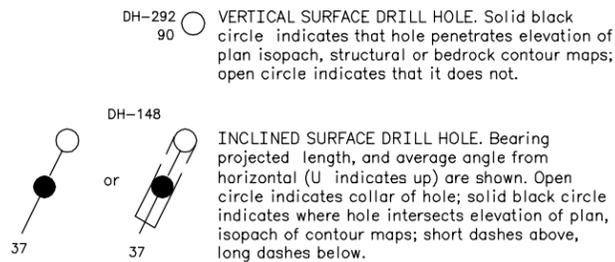
In every case the special symbol (and suffix) must be shown and adequately defined in the General Geologic Explanation, Legend and Notes Drawing

DRILL HOLE AND TEST PIT SYMBOLS

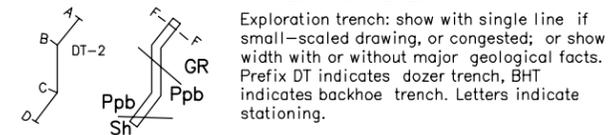
SURFACE GEOLOGY OR LOCATION OF EXPLORATION



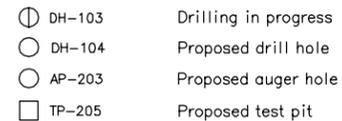
ELEVATION PLAN MAPS



TRENCH SYMBOLS

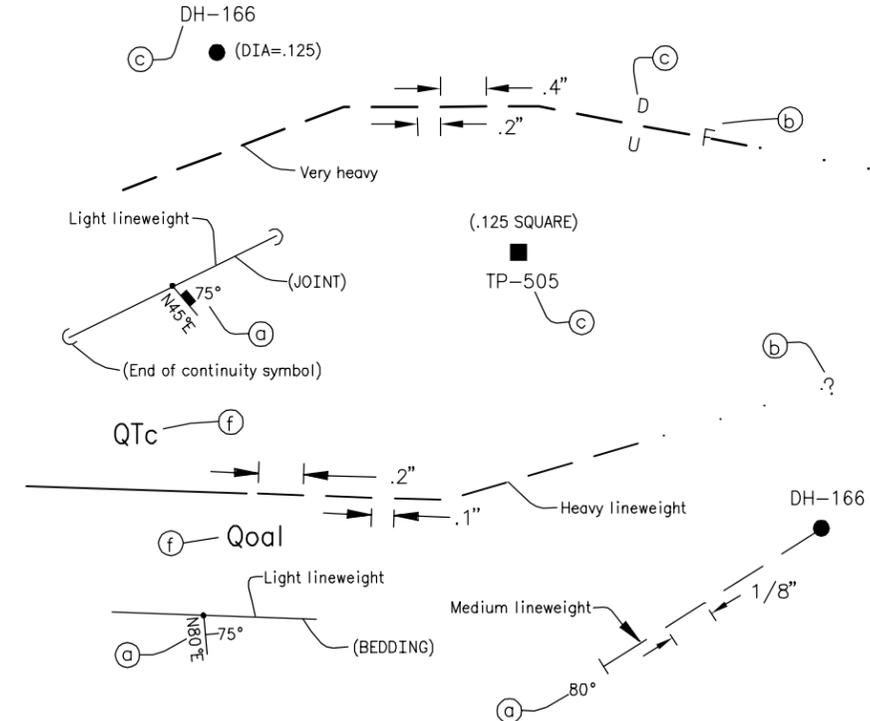
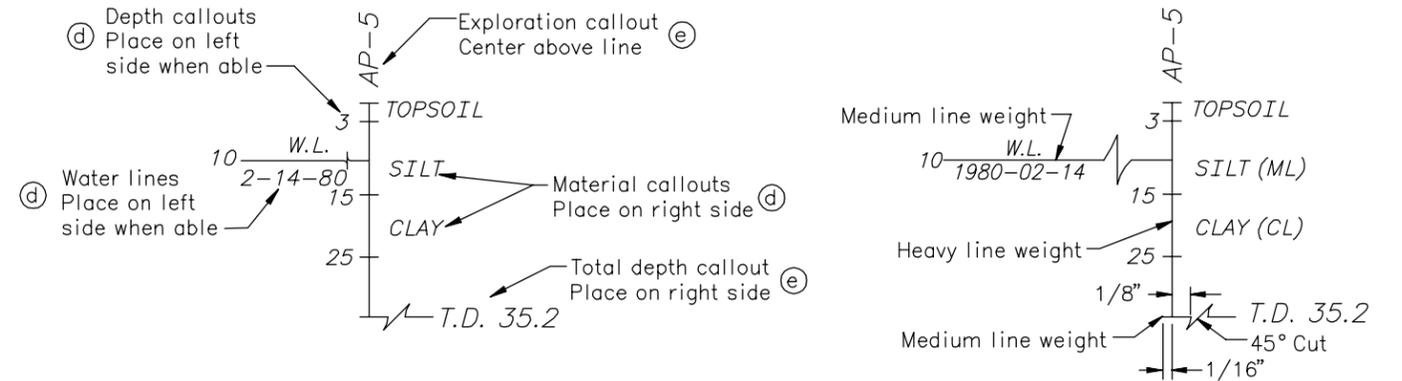
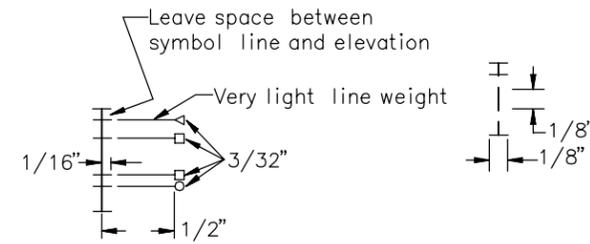


SYMBOLS FOR WORKING OR PROGRESS DRAWINGS



STRUCTURAL CONTOUR/ EXCAVATION GEOLOGY MAPS

Drill hole symbols used for vertical, horizontal, or inclined surface and underground holes are similar to ELEVATION PLAN MAPS except black circle indicates where hole penetrates excavation surface or structure. Short dashes above, long dashes below. Underground holes that do not penetrate excavation or structure generally are not shown.



STANDARD LETTERING SIZES AND LINE WEIGHTS

REF	LETTERING HEIGHT (INCHES)	LINEWEIGHT	VERTICAL/ SLANTED LETTERING
(a)	.080	Light	V
(b)	.120	Medium	V
(c)	.100	Medium	V
(d)	.080	Light	S
(e)	.100	Medium	S
(f)	.140	Heavy	V

LINEWEIGHT	INCHES	MM
Very Light	.007	.18
Light	.010	.25
Medium	.014	.35
Heavy	.020	.50
Very Heavy	.028	.70
Bold	.039	1.0

ALL LINES SMOOTH, BLACK, FIRM AND EVEN

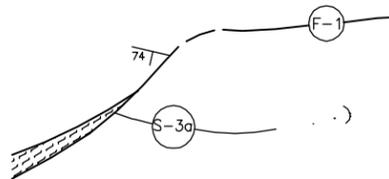
GEOLOGIC EXPLORATION AND TESTING AND SURFACE GEOLOGY SYMBOLS

CONTACTS



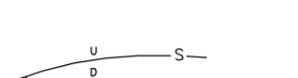
Solid where definite or located accurately (accuracy depends on survey control and scale of drawing); dashed where approximate; queried where inferred; dotted where concealed. Use appropriate attitude symbol for orientation of contact.

SHEARS AND FAULTS

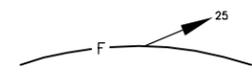


Shear and fault zones shown solid where definite or located accurately (accuracy depends on survey control and scale of drawing); dashed where approximate or projected; queried where inferred; dotted where concealed. Symbol) indicates probable limit of continuity. Letters "F" or "S" and number (F-1 or S-3a) used for identifying shears, faults, and their splays on drawings and references for discussion.

NOTE: Line weights for faults should be heavier than contacts, etc. Faults or shears can be lettered with "F" or "S" if needed to distinguish them from contours, contacts or other lines, especially when red overlays are not used.



Shear showing relative vertical movement U, up and D, down. Hachures may be used on down side of normal shear or fault.



Fault, showing bearing and plunge of relative movement of downthrown (D) block



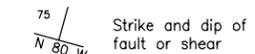
Thrust or reverse fault, barbs on side of upper plate



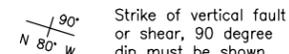
Fault, showing bearing and plunge of grooves, striations, or slickensides



Fault, showing relative horizontal movement

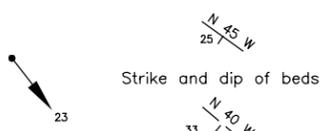


Strike and dip of fault or shear



Strike of vertical fault or shear, 90 degree dip must be shown

BEDDING



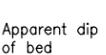
Strike and dip of beds



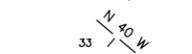
Horizontal beds



Strike of vertical beds



Apparent dip of bed



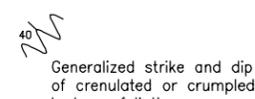
Approximate or estimated strike and dip



Strike and dip of overturned beds

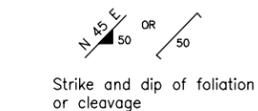


Cross bedding, strike and dip may be shown

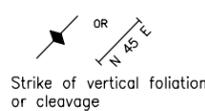


Generalized strike and dip of crenulated or crumpled beds or foliation

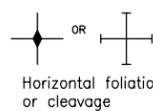
FOLIATION OR CLEAVAGE



Strike and dip of foliation or cleavage

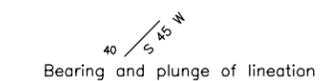


Strike of vertical foliation or cleavage



Horizontal foliation or cleavage

LINEATION



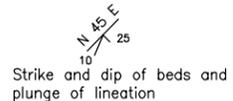
Bearing and plunge of lineation



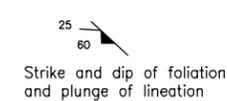
Horizontal lineation



Vertical lineation



Strike and dip of beds and plunge of lineation

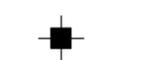


Strike and dip of foliation and plunge of lineation

JOINTS



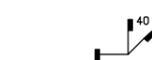
Strike and dip of joint



Horizontal joint



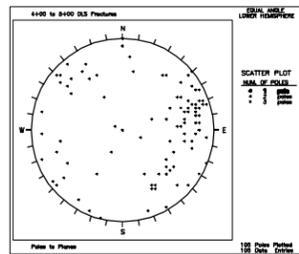
Strike of vertical joint



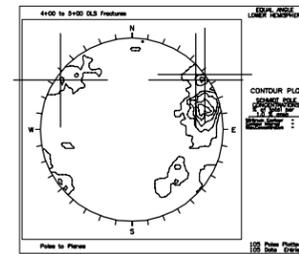
Strike and dip of multiple joints (Dip symbols shifted along strike for legibility; observations located at point of intersection.)

NOTE: Strike direction text may be omitted if clutter would result with its use.

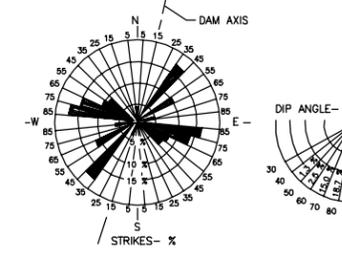
- Symbols with a dot indicate a surveyed location
- Symbols with no dot indicate an approximate location



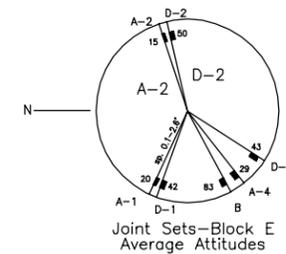
Point Contour Diagram: Poles plotted on lower hemisphere of equal area stereonet



Joint Contour Diagram: Poles plotted on lower hemisphere of equal area stereonet

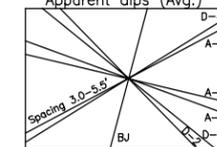


Joint Rose: Histogram presentation of joint strike and dips for a given joint sampling.



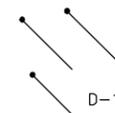
Joint Set Diagram: Provides average attitudes of joint sets occurring in a specified area, such as a "foundation block", tunnel observation, abutment, or entire map. Spacing and/or percent of distribution from contour plotting may also be shown.

Joint Sets-Block E Apparent dips (Avg.)

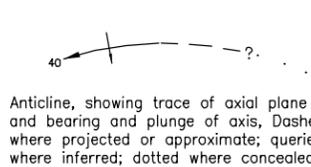


Apparent Dip Block: Illustrates average orientation of joint sets in plane of geologic section for a specific area, or along entire section. Spacing or percent distribution may be shown.

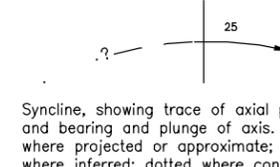
Apparent dip or joint traces on sections, or trench and tunnel logs.



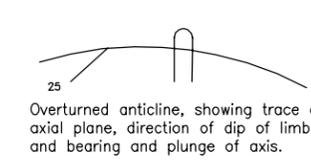
FOLDS



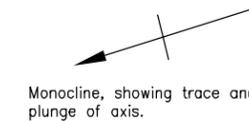
Anticline, showing trace of axial plane and bearing and plunge of axis. Dashed where projected or approximate; queried where inferred; dotted where concealed.



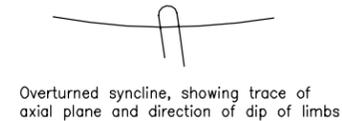
Syncline, showing trace of axial plane and bearing and plunge of axis. Dashed where projected or approximate; queried where inferred; dotted where concealed.



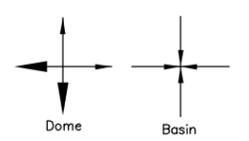
Overturned anticline, showing trace of axial plane, direction of dip of limbs and bearing and plunge of axis.



Monocline, showing trace and plunge of axis.



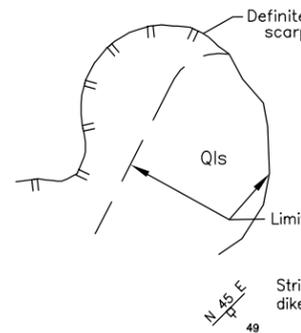
Overturned syncline, showing trace of axial plane and direction of dip of limbs and bearing and plunge of axis



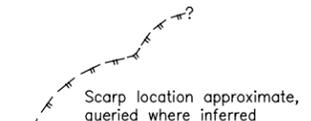
Dome Basin

MISCELLANEOUS SYMBOLS

LANDSLIDES

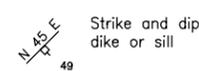


Strike and dip of failure plane



Scarp location approximate, queried where inferred

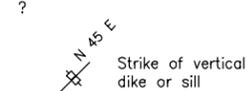
DIKES AND SILLS



Strike and dip dike or sill



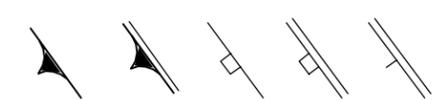
Horizontal sill

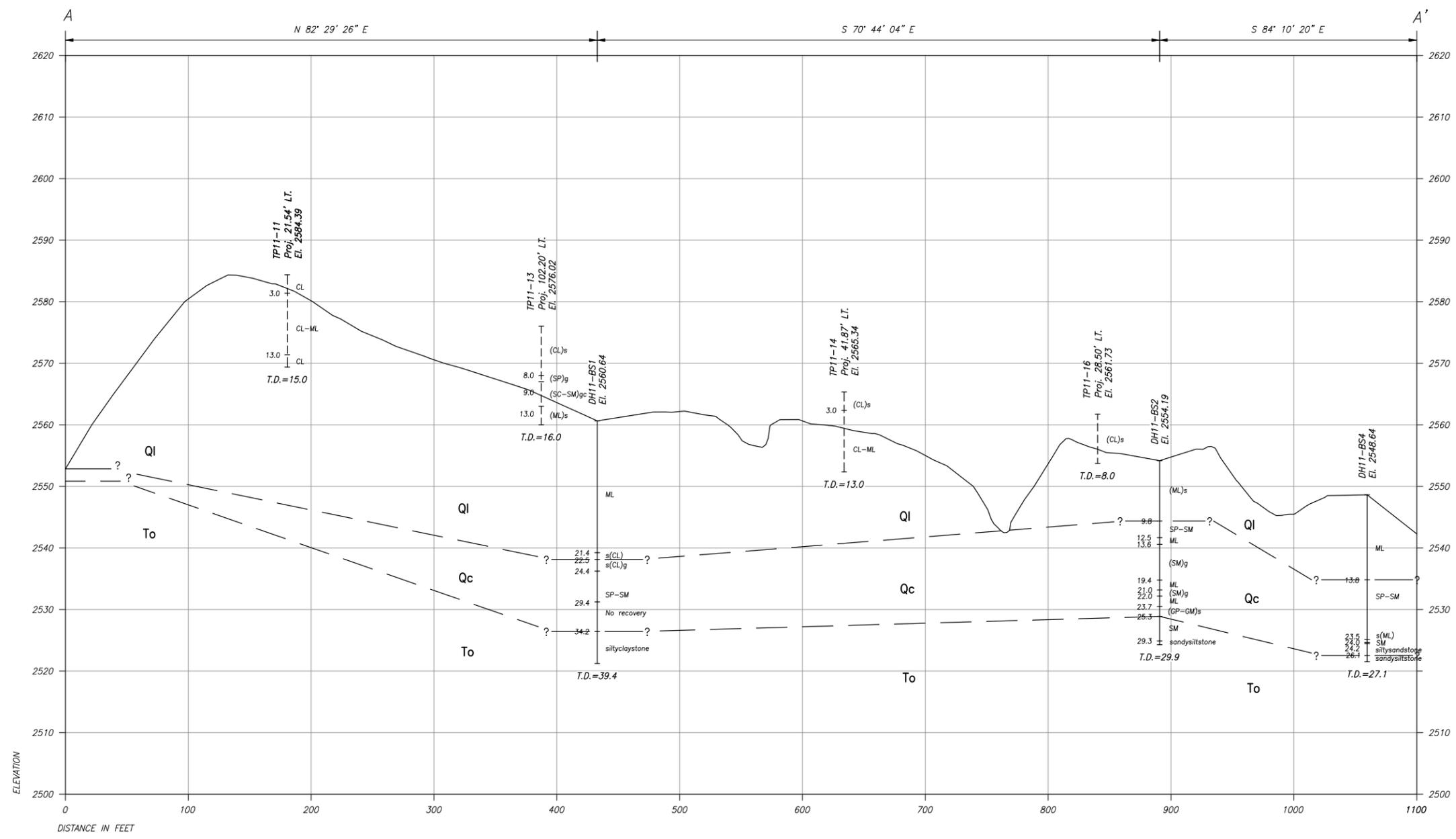


Strike of vertical dike or sill

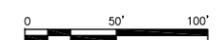
OTHER SYMBOLS FOR PLANAR FEATURES

These symbols may be used for attitudes of veins or other structural features. They must be explained on the General Geologic Explanation, Legend and Notes Drawing.





SECTION A-A' PROFILE



DATE AND TIME PLOTTED
NOT PLOTTED BY
NOT PLOTTED BY
NOT PLOTTED BY

CAD SYSTEM
JUL2000
CAD FILENAME
UNKNOW

ALWAYS THINK SAFETY

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
STANDARD DRAWING

DRAFTING STANDARDS

STATION NAME (CITY, ST) YYYY-MM-DD

GEOLOGIC CROSS SECTION

GEOLOGIC DRAFTING DETAILS

PRJ-STA-SEQ

SHEET 1