APPENDIX C

Water Rights Information

Application ID:

Query

County:
Placer
Load

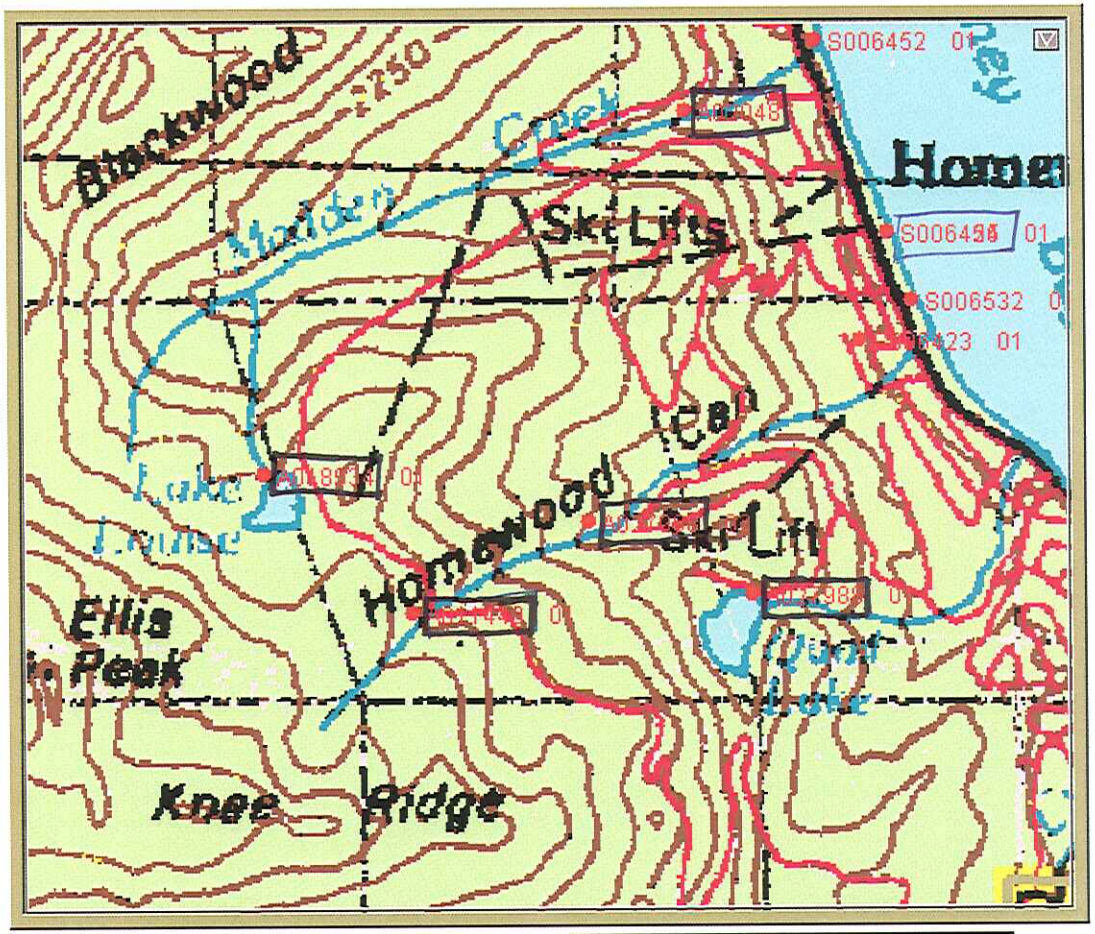
Major City:
Anaheim
Load

WATER RIGHTS INFORMATION MANAGEMENT SYSTEM

STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

FIND WATER RIGHTS IN CALIFORNIA



Full View | ZoomIn | ZoomOut | Water Rights | Quad Map

☑ Water Rights Label

Mouse Click Functions: ◉ Center ○ Web Report ○ Street Map ○ Image Map

PrintMap

County: PLACER

HMR

A020487 - NO INFO
A018934
A011449
A027988 01
A027988 02
S006462

Water Diversion

Point of Diversion No.	*Body of Water*	*Permit Holder*	*Max Direct Diversion (cfs)*	*Max Direct Diversion (gpm)*	*Maximum Storage (acre-ft/yr)*	*Maximum Annual Use (acre-ft/yr)*
A018934	Madden Creek	Homewood Mountain Resort	0.24	108	30	0
A020487	Madden Creek	unknown	?	?	?	?
A011449	Ellis Creek	USDA - Forest Service, Lake	0.34	153	130.5	0
A027988-01	Ellis Creek	Quail Lake Water Company	0.68	306	88	288
A027988-02	Quail Lake	Quail Lake Water Company				
S006462	Lake Tahoe	Homewood Mountain Resort	0	0	0	0
		Total =	**1.26**	**567**	**248.5**	**288**

[login client: Mon Jan 15 12:48:09 PST 2007/209.79.203.3]

WRIMS Query Report

Application : S006462 [JShape Map - 250K] [JShape Map - 100K]

Primary Contact Owner : HOMEWOOD SKI CORPORATION
Owner(s) : HOMEWOOD SKI CORPORATION
Mail Receiver (Owner) : HOMEWOOD SKI CORPORATION

Source & POD Information :
Water to be diverted from LAKE TAHOE - (Stream Code: 641500000)
Tributary to TRUCKEE RIVER
Maximum Direct Diversion from this source : 0
Maximum Storage from this source per year : 0 ac-ft/annum
POD IN SE Quarter of NW Quarter of Section 07, T14N, R17E, MM&B (Placer County)
Direct Diversion from this POD : 0
Total Annual Direct Diversion from this POD : 0 ac-ft/annum
Diversion Storage from this POD : 0 ac-ft/annum

Amount :

Purpose of Use : Domestic
Diversion Season : January 1 to March 1

License Image(s):
No Found

[login client: Fri Jan 12 12:55:07 PST 2007/209.79.203.3]

WRIMS Query Report

Application : A018934 [JShape Map - 250K] [JShape Map - 100K]
Permit : 014398 **Issued on** JUL 02,1964

Primary Contact Owner : HOMEWOOD MOUNTAIN RESORT
Owner(s) : HOMEWOOD MOUNTAIN RESORT
Mail Receiver (Owner) : HOMEWOOD MOUNTAIN RESORT

Source & POD Information :
Water to be diverted from MADDEN CREEK - (Stream Code: 641503000)
Tributary to LAKE TAHOE thence TRUCKEE RIVER
Maximum Direct Diversion from this source : 0.24 cubic-feet/sec
Maximum Storage from this source per year : 30 ac-ft/annum
POD IN NW Quarter of SW Quarter of Section 11, T14N, R16E, MM&B (Pla
Direct Diversion from this POD : 0.24 cubic-feet/sec
Total Annual Direct Diversion from this POD : 0 ac-ft/annum
Diversion Storage from this POD : 30 ac-ft/annum

Amount :
Maximum Application Direct Diversion : 0.24 cubic-feet/sec
Maximum Storage : 30 acre-feet/ann

Purpose of Use : Domestic
Diversion Season : January 1 to December 1
Storage Season : January 1 to June 1
Purpose of Use : Recreational
Diversion Season : January 1 to December 1
Storage Season : January 1 to June 1

License Image(s):
No Found

[login client: Fri Jan 12 12:56:00 PST 2007/209.79.203.3]

WRIMS Query Report

Application : A011449 [JShape Map - 250K] [JShape Map - 100K]
Permit : 007756 **Issued on** MAR 09,1950

Primary Contact Owner : C/O JEFF O'CONNELL, USDA-FOREST SERVICE, LAKE
Owner(s) : C/O JEFF O'CONNELL, USDA-FOREST SERVICE, LAKE TAHOE BASIN M
Mail Receiver (Owner) : C/O JEFF O'CONNELL, USDA-FOREST SERVICE, LAKE

Source & POD Information :
Water to be diverted from ELLIS CREEK - (Stream Code: 641504000)
Tributary to LAKE TAHOE thence TRUCKEE RIVER
Maximum Direct Diversion from this source : 0.34 cubic-feet/sec
Maximum Storage from this source per year : 0 ac-ft/annum
POD IN SW Quarter of SW Quarter of Section 11, T14N, R16E, MM&B (Pla
Direct Diversion from this POD : 0.34 cubic-feet/sec
Total Annual Direct Diversion from this POD : 130.5 ac-ft/annum
Diversion Storage from this POD : 0 ac-ft/annum

Amount :
Maximum Application Direct Diversion : 0.34 cubic-feet/sec
Maximum Annual Use : 130.5 acre-feet/ann

Purpose of Use : Mining
Diversion Season : January 1 to December 1
Purpose of Use : Domestic
Diversion Season : January 1 to December 1

License Image(s):
No Found

[login client: Fri Jan 12 12:58:42 PST 2007/209.79.203.3]

WRIMS Query Report

Application : A027988 [JShape Map - 250K] [JShape Map - 100K]

Primary Contact Owner : QUAIL LAKE WATER COMPANY
Owner(s) : QUAIL LAKE WATER COMPANY
Mail Receiver (Agent) : DANIEL F. GALLERY

Source & POD Information :

Water to be diverted from QUAIL LAKE - (Stream Code: 641598010)
Tributary to UNST thence LAKE TAHOE, TRUCKEE RIVER
Maximum Direct Diversion from this source : 0.68 cubic-feet/sec
Maximum Storage from this source per year : 88 ac-ft/annum
POD IN SE Quarter of SW Quarter of Section 12, T14N, R16E, MM&B (Pla
Direct Diversion from this POD : 0.68 cubic-feet/sec
Total Annual Direct Diversion from this POD : 0 ac-ft/annum
Diversion Storage from this POD : 88 ac-ft/annum

Water to be diverted from ELLIS CREEK - (Stream Code: 641504000)
Tributary to LAKE TAHOE thence TRUCKEE RIVER
Maximum Direct Diversion from this source : 0.68 cubic-feet/sec
Maximum Storage from this source per year : 88 ac-ft/annum
POD IN NE Quarter of SE Quarter of Section 11, T14N, R16E, MM&B (Pla
Direct Diversion from this POD : 0.68 cubic-feet/sec
Total Annual Direct Diversion from this POD : 0 ac-ft/annum
Diversion Storage from this POD : 88 ac-ft/annum

Water to be diverted from LAKE TAHOE - (Stream Code: 641500000)
Tributary to TRUCKEE RIVER
Maximum Direct Diversion from this source : 0.68 cubic-feet/sec
Maximum Storage from this source per year : 0 ac-ft/annum
POD IN NW Quarter of SE Quarter of Section 07, T14N, R17E, MM&B (Pla
Direct Diversion from this POD : 0.68 cubic-feet/sec
Total Annual Direct Diversion from this POD : 0 ac-ft/annum
Diversion Storage from this POD : 0 ac-ft/annum

Amount :
Maximum Application Direct Diversion : 0.68 cubic-feet/sec
Maximum Storage : 88 acre-feet/ann
Maximum Annual Use : 288 acre-feet/ann

Purpose of Use : Municapal
Diversion Season : January 1 to December 1
Storage Season : November 1 to August 1

License Image(s):
No Found

California Home

Monday, January 15, 2007

California Environmental Protection Agency

STATE WATER RESOURCES CONTROL BOARD

WATER RIGHTS

Information Pertaining to Water Rights in California - 1990

STATE WATER RESOURCES CONTROL BOARD
INFORMATION PERTAINING TO
WATER RIGHTS IN CALIFORNIA - 1990

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INTRODUCTION

Additional information concerning procedures for appropriating water is available in SWRCB's publications entitled, "How to File an Application/Registration to Appropriate Water in California" and "A Guide to California Water Right Appropriations". These free publications may be picked up from the State Water Resources Control Board, Division of Water Rights, 901 P Street, Third Floor, Sacramento, California 95814. If you wish to write for either one or both of these publications, address your request to the Division of Water Rights, Post Office Box 2000, Sacramento, CA 95812-2000 or telephone (916) 657-2170 and request they be mailed to you.

The California Code of Regulations, Title 23. Waters, contains the regulations for the administration of water rights and water quality activities of the State Water Resources Control Board. A complete copy of these regulations may be obtained at the current cost of $15.90 from the California Department of General Services, Publications section, Post Office Box 1015, North Highlands, CA 95660. A renewal service, which provides new and amended regulations also, may be obtained from the California Department of General Services at the current cost of $20.00 per year.

Booklets containing excerpts from the California Code of Regulations and the California Water Code pertaining to water rights may be obtained free of charge from the Division of Water Rights as described in the first paragraph. These booklets, however, contain information only as of the date the booklets were published.

GENERAL INFORMATION PERTAINING TO WATER RIGHTS

The following general information pertaining to water rights is offered for the guidance and assistance of those who may be interested. While believed to be correct, the information is by no means complete. For additional information, see the California Water Code and case law.

Those to whom this general information is of particular importance or who propose to apply it to specific cases should seek the advice of an attorney or engineer, depending on the kind of information needed.

APPROPRIATIVE RIGHTS INITIATED PRIOR TO DECEMBER 19, 1914

Prior to 1872, appropriative water rights could be acquired by simply taking and beneficially using water. The priority of the right was the first substantial act leading toward putting the water to beneficial use provided the appropriation was completed with reasonable diligence; otherwise, priority did not attach until beneficial use of the water commenced.

In 1872, sections 1410 through 1422 of the California Civil Code were enacted. These sections established a permissive procedure for perfecting an appropriation of water. Provisions were made for establishing a priority of right by posting a notice of appropriation at the proposed point of diversion and recording a copy of the notice with the respective County Recorder. If these procedures were not followed, the pre-1914 appropriative right did not attach until water was beneficially used.

Once acquired, an appropriative right can be maintained only by continuous beneficial use of water. Regardless of the amount claimed in the original notice of appropriation or at the time diversion and use first began, the amount which now can be rightfully claimed under an appropriative right initiated prior to December 19, 1914 therefore has, in general, become fixed by actual beneficial use as to both amount and season of diversion. The conditions under which an appropriative right may be forfeited in whole or in part are set forth under the heading "Loss of Appropriate Rights".

Successful assertion of an appropriative right which was initiated prior to December 19, 1914, where the validity of

the right is disputed, requires evidence of both the original appropriation and the subsequent maintenance of the right by continuous and diligent application of water to beneficial use (see California Water Code section 1202(b)). Frequently such evidence consists of oral testimony of persons who have actual knowledge of the relevant facts. As the years pass, such testimony, dependent upon the recollection of individuals, may become difficult or impossible to secure. At least a partial remedy for this situation may be found in the procedure for perpetuation of testimony set forth in section 2017 of the California Code of Civil Procedure.

A record of water use under "pre-1914 Appropriative Rights" should be established by filing a Statement of Water Diversion and Use with the SWRCB.

APPROPRIATIVE RIGHTS INITIATED SUBSEQUENT TO DECEMBER 19, 1914

The two methods of appropriation existing prior to December 19, 1914, the effective date of the California Water Commission Act, no longer are available for appropriating water from surface streams, other surface bodies of water, or from subterranean streams flowing in known and definite channels. An appropriation of such water now requires compliance with the provisions of Division 2, Part 2 of the California Water Code.

The steps which now must be taken in order to initiate and acquire an appropriative water right are described under the heading "General Information Pertaining to Applications for Permits to Appropriate Unappropriated Water".

LOSS OF APPROPRIATIVE RIGHTS

By Abandonment - To constitute abandonment of an appropriative right, there must be concurrence of act and intent, the relinquishment of possession, and the intent not to resume it for a beneficial use, so that abandonment is always voluntary, and a question of fact (1 Wiel, 3d ed., 604, 605).

By Nonuse - Nonuse is distinguished from abandonment. Nonuse means failure to put water to beneficial use for a period of years. The courts have held that pre-1914 rights can be lost as the result of five years' nonuse (Smith v. Hawkins 42 P. 454).

California Water Code section 1241 provides for loss of appropriative rights after five years' nonuse. This section applies only to an appropriative right acquired after December 19, 1914.

RIPARIAN RIGHTS

No California statute defines riparian rights, but a modification of the common law doctrine of riparian rights has been established in this State by decisions of the courts and confirmed by the provisions of section 3, Article XIV of the California Constitution (see California Water Code sections 100, 101). Lands within the watershed of a natural watercourse, which are traversed thereby or border thereon, with the exceptions and limitations hereinafter, indicated, may be riparian. Each owner thereof may have a right, which is correlative with the right of each other riparian owner to share in the reasonable beneficial use of the natural flow of water, which passes his land. No permit is required for such use. The State Water Resources Control Board's (SWRCB) policy is to consider natural flow as not including return flows derived from use of ground water, water seasonally stored and later released, or water diverted from another watershed. In administering the California Water Code, the SWRCB is governed by the following considerations relative to the doctrine of riparian rights as applied to this State:

1. The riparian right exists by reason of ownership of land abutting upon a stream or body of water and affords

no basis of right to use water upon nonriparian land. (Rancho Santa Margarita v. Vail, 11 Cal. 2d 501, 81 P. 2d 533)

2. In order to divert water under claim of riparian right, the diverter must use the water on riparian land but need not own the land at the point of diversion. That is, such diverter may divert at a point upstream from his land so long as permission is granted to use that point of diversion, and intervening land owners between the point of diversion and the place of use are not adversely affected by such practices. (Turner v. James Canal Co., 155 Cal. 82, 99 P. 520 (1909))
3. A parcel of land loses its riparian right when severed from land bordering the stream by conveyance unless the right is reserved for the severed parcel. The riparian right also may be destroyed when purportedly transferred apart from the land by grant, contract, or condemnation. Once lost, it cannot be restored.
4. As between riparian owners, priority of use establishes no priority of right; i.e., one cannot claim superior right merely because water was used first. (Pabst v. Finmand, 190 Cal. 124, 211 P. 11 (1922))
5. The riparian right is neither created by use nor lost by nonuse.
6. If there is insufficient water for the reasonable beneficial requirements of all riparian owners, they must share the available supply. Apportionment is governed by various factors, including each owner's reasonable requirements and uses. In the absence of mutual agreement, recourse to judicial determination may be necessary.
7. As between riparian owners, one of them may take the whole supply if necessary for strictly domestic use; that is, for so-called "natural uses ... arising out of the necessities of life on the riparian land, such as household use, drinking, watering domestic animals." (1 Wiel, 3d ed., Water Rights in the Western States, page 795; Deetz v. Carter, 232 Cal. App. 2d 851; but see Prather v. Hoberg, 24 Cal. 2d 549, 150 P. 2d 405, re an equitable apportionment where the use is commercialized as for resort purposes and therefore is not strictly domestic.)
8. The riparian owner is subject to the doctrine of reasonable use, which limits all rights to the use of water to, that quantity reasonably required for beneficial use and prohibits waste or unreasonable use or unreasonable methods of use or diversion. (Sec. 3, Art. XIV, Const. of Cal.; Peabody v. City of Vallejo, 2 Cal. 2d 351, 40 Pac. 2d 486; Tulare Irr. Dist. et al v. Lindsay Strathmore Irr. Dist., 3 Cal. 2d 489, 45 Pac. 2d 972; Rancho Santa Margarita v. Vail, 11 Cal. 2d 501, 81 P. 2d 533)
9. A riparian right may be impaired or lost through prescription. Refer to the following section, "PRESCRIPTION".
10. The riparian right attaching to a particular parcel of land is subject to appropriative rights established by diversion upon vacant public domain before the first valid steps were taken to acquire said parcel of land from the United States, whether diversion was made at points upstream or downstream.
11. The riparian right cannot be transferred for use upon another parcel of land.
12. The riparian right does not apply to foreign water; i.e., water originating in a different watershed cannot be used under claim of riparian right. (E. Clemens Horst Co. v. New Blue Point Mining Co., 177 Cal. 631, 171 P. 417; Crane v. Stevinson, 5 Cal. 2d 387, 54 P. 2d 1100; Rancho Santa Margarita v. Vail, 11 Cal. 2d 501, 81 P. 2d 533)
13. Water cannot be stored and withheld for a deferred use (other than regulatory storage) under claim of riparian right. (Seneca Consol. Gold Mines Co. v. Great Western Power Co., 209 cal. 206, 287 pac. 93; Colorado Power Co. v. Pac. Gas and Electric Co., 218 cal. 559, 24 p. 2d 495; Moore v. CaliforniaOregon Power Co., 22 cal. 2d 725, 140 p. 2d 798)

A record of water use under riparian claim should be established by filing a Statement of Water Diversion and Use with the SWRCB.

PRESCRIPTION

A right secured by appropriation does not depend upon use for any given length of time. It is complete immediately upon full beneficial use being made of water pursuant to a permit. The right, however, is subordinate and subject to all prior vested rights, whether appropriative or riparian. This limitation may be removed under certain

circumstances by continuous use adverse to prior rights for five years and failure of the owners of the prior rights to file legal action to protect themselves during that time. Their cause of action then becomes barred by the statute of limitations. The right of the subsequent appropriator thereafter no longer is subject to the prior vested rights. This result is called a prescriptive right to the use of water.

In order for an appropriative or riparian claim to ripen into a prescriptive right as against the owner of a riparian or a prior appropriative right, the use must be continuous and uninterrupted for a period of five years. During all of such time, the use must be open and notorious, exclusive, under claim of right, hostile and adverse to the title of the prior owner, and an invasion of the prior owner's right. The prior right owner must have had an opportunity to prevent the adverse use by legal action, and such taxes as are assessed must be paid. Absence of any of these conditions is fatal to the acquisition of a prescriptive water right.

Water users ordinarily have no concern with the use of water by others after it has passed their land or point of diversion. The upstream users thus have no legal right to prevent downstream use. A well-established rule is that a prescriptive water right ordinarily cannot be acquired against an upstream user.

A right cannot be acquired by prescription to use a greater quantity of water than reasonably is necessary for the beneficial purpose served, regardless of the amount actually used, in accordance with the constitutional amendment of 1928 (art. XIV, sec. 3).

Since enactment of the California Water Commission Act on December 19, 1914, a right to appropriate or use water (other than as a riparian or overlying owner, or appropriator of percolating ground water, or stockponds that comply with article 2.5, commencing with section 1226 of chapter 1 of part 2 of division 2 of the California Water Code), cannot have been secured without first obtaining a permit from the State (see California Water Code section 1225 and Crane v. Stevinson, 5 cal. 2d 387, 54 p. 2d 1100). Although one who now uses water without a permit for a sufficient period of time may, under certain circumstances foreclose objection by those who have been adversely affected, such user thereby does not acquire a right to prevent diversions by others which deplete the supply of water available. California courts have not been called upon to determine this precise question. In view of the uncertainty in this respect and because a prescriptive right can be finally determined only by a court of competent jurisdiction, the policy of the SWRCB is to disregard a claim to water subject to the permit procedure which is based only upon use initiated subsequent to 1914 unless such use is supported by a permit.

In PecDle v. Shirokow (1980) 26 cal. 3d 301, the California Supreme Court addressed the question of whether a person who does not hold a water right permit or license may establish a prescriptive water right to divert and use water. The Court held that the water appropriation procedure established by statute constitutes the exclusive method of acquiring a right to appropriate or use water, which is subject to appropriation. Since Shirokow was using water and held no permit or license authorizing an appropriation of water, the Court concluded that such use of water was improper. In addition, the Court held that the State's governmental interest in regulating the use of public water is a public right, which cannot be lost through prescription.

VESTED APPROPRIATIVE AND RIPARIAN RIGHTS NOT AFFECTED BY FILING AN APPLICATION

An existing valid riparian or appropriative right will be neither strengthened nor impaired by a permit to appropriate water issued to the owner of such right (see Barr v. Branstetter, 42 cal. app. 725, 184 p. 409). An application to appropriate water may be filed by such owner, however, in the following instances: (1) to initiate a right to additional unused water where water is available for further appropriation in excess of that covered by the existing right; and (2) to establish a new right to water already in use by applicant where the validity of the existing right has not been adjudicated or is in doubt. In either event, the priority of the right acquired by beneficial use under the permit will be the date of filing the application--the priority will not relate back to the time of the first use under a former claim.

The California Code of Regulations, title 23~ section 731, requites an applicant for a permit to list all claims to existing rights for the use of all or part of the water sought by the application. A permit, if issued, will limit the water to be appropriated so that existing rights, combined with the permit will not yield a right to use an unreasonable quantity of water. Subsections (c), (d), and (e) of section 731 contain penalties for anyone who transfers an existing right before, or does not claim an existing right until, a permit or license is issued. This provision is in recognition of the fact that a permit should be issued only for unappropriated water, and that water which is being used pursuant to an existing right is not unappropriated, whether the right is being exercised by the applicant or by another person.

DISPUTES OVER THE USE OF WATER

The right to use water is a property right and may be protected against infringement in the same manner as any other property right; i.e., by appropriate court action. The SWRCB does not have the authority to determine the validity of vested rights other than appropriative rights initiated December 19, 1914 or later. The SWRCB, however, may assist the courts in such determination as described in the following paragraphs entitled, "Determination of Existing Rights". The SWRCB will investigate and take appropriate action on a written complaint received alleging (1) a violation of the conditions of a permit or license issued by the SWRCB, (2) waste or unreasonable use of water, (3) illegal diversion or use, or (4) unreasonable effects on public trust or public interest uses of the water. (See title 23, chapter 3, subchapter 2, articles 18 and 22 of the California Code of Regulations; California Water Code section 275 et. seq.; and California Water Code section 1050 et. seq.)

When a complaint of an illegal diversion or use is filed, the SWRCB will take action under section 1052 of the California Water Code. Subsection (a) provides that "The diversion or use of water subject to this division other than as authorized in this division is a trespass." Subsection (d) provides, in part, that "Any person or entity committing a trespass as defined in this section may be liable for a sum not to exceed five hundred dollars ($500) for each day in which the trespass occurs. The Attorney General, upon request of the SWRCB, shall petition the superior court to impose, assess, and recover any sums pursuant to this subdivision. " SWRCB policy is to initiate court action only in a clear instance of unlawful use of water. Where there is a bona fide dispute as to the facts, or where circumstances indicate an adjudication is required, action by the SWRCB under section 1052 generally is not considered appropriate.

PUBLIC TRUST

With its roots in Roman law, the doctrine of public trust holds that certain resources are the property of all. In its modern form, the public trust doctrine holds that a state, as sovereign, takes title to tidelands and the beds of nontidal navigable waters at the time the state is admitted to the Union. Holding these lands and the waters above them in trust, the state's duty is to exercise continued supervision over the trust for the benefit of the people. Entities acquiring rights, for example in navigable streams, lakes, marshlands and tidelands, generally hold those rights subject to the trust and can assert no vested right in a manner harmful to the public trust. In other words, rights acquired in public trust resources cannot be placed entirely beyond the direction and control of the state.

The scope of the public trust doctrine continues to evolve as popular perceptions of the values and uses of waterways change. The public trust was traditionally defined to protect navigation, commerce, and fisheries; but recently it has been held to include the right to fish, hunt, bathe, swim, boat, recreate, navigate, and use the bottom of navigable waters for anchoring, standing, or other purposes.

In this century, the California courts have interpreted the legal term "navigable" very broadly to include recreational rafting and kayaking which can take place in very shallow water. Within the last decade, the California Supreme Court has recognized that uses of public trust resources include the preservation of the land, especially tideland, in its natural state to serve as ecological units for scientific study, as open space, and as habitat for birds and aquatic

life. In administering the public trust, the courts have allowed the state to favor one use over another.

In its presently-developed form, the public trust doctrine requires the courts and the SWRCB to perform a balancing test to weigh the potential value to society against the impact on trust resources of a proposed or existing diversion. The action which will feasibly protect public trust values must be implemented.

On February 17, 1983, the California Supreme Court filed its decision in National Audubon Society v. Superior Court of Alpine County, 33 Cal. 3d 419, 189 Cal. Rptr. 346 (1983). The Court merged the public trust doctrine with the California water rights system. The Court also held that all uses of water, including public trust uses, must conform to the standard of reasonable use. The Court further held that the SWRCB has a duty to consider public trust values before it approves water right applications. Finally, the Court held that the SWRCB has a continuing duty to supervise the taking and use of appropriated water.

DETERMINATION OF EXISTING RIGHTS

Court Reference. When a suit is brought by private parties in any court of competent jurisdiction in this State for determination of water rights, sections 2000 and 2001 of the California Water Code provide that the case, at the discretion of the court, may be referred to the SWRCB, as referee, for investigation. All rights of whatever character may be included under this procedure.

Statutorv Adjudication. section 2525 of the California Water Code provides for the initiation of proceedings for the determination of all rights to the water of any stream, lake, or other body of water except percolating underground water. A petition signed by one or more claimants of the right to the use of water from the source involved must be filed with the SWRCB. The procedures outlined in sections 2500 through 2900 of the California Water Code must be followed.

If a determination is undertaken under either the court reference or statutory procedure, the SWRCB thoroughly investigates the stream system and water rights involved. In general, such investigation will include measurements of the water supply and of all diversions from the stream system, a survey of all diversion systems and areas irrigated therefrom, and a determination of the duty of water for irrigation and other uses.

After due notice to all parties, the SWRCB prepares findings which are submitted to the court. The court itself hears those who may be dissatisfied with these findings and enters a decree establishing the various rights involved.

The court also sets forth the relative priority, amount, purpose of use, season of diversion, point of diversion, and place of use of each right. Appeals from such decree may be taken in the same manner and with the same effect as in other civil cases.

By virtue of the above procedures, the SWRCB may supplement with effective and expeditious methods the work of the courts in determining water rights. These procedures lead to a complete and final determination of all the water rights involved, and, should necessity arise, a watermaster may be appointed to administer the stream and insure distribution of the water as decreed.

A copy of the SWRCB's publication, "Regulations and Information Pertaining to Determination of Rights to the Use of Water in California" may be obtained on request.

APPROPRIATION OF UNDERGROUND WATER

The jurisdiction of the SWRCB to issue permits and licenses for appropriation of underground water is limited by section 1200 of the California Water Code to "subterranean streams flowing through known and definite channels".

If use of underground water on nonoverlying land is proposed and the source of the water is a subterranean stream flowing in a known and definite channel, an application pursuant to the California Water Code is required. A Statement of Water Diversion and Use should be filed for use of water from a subterranean stream on overlying land (see Statements of Water Diversion and Use section of this document).

Underground water not flowing in a subterranean stream, such as water percolating through a ground water basin, is not subject to the SWRCB's jurisdiction. Applications to appropriate such water, regardless of use, should not be submitted. Owners of lands overlying a ground water basin or other common source of supply have the first right to withdraw water for reasonable beneficial use on their overlying lands, and the right of each owner is equal and correlative to the right of all other owners similarly situated. In case of insufficient water to supply fully the requirements of all, the available supply must be equitably apportioned. In these respects, overlying rights are closely similar to riparian rights pertaining to surface bodies of water.

Subject to future requirements on overlying lands, surplus water which may be withdrawn without creating an overdraft on the ground water supply may be appropriated for use on nonoverlying lands. Such appropriation is accomplished simply by use--no permit is required. An application filed to appropriate underground water subsequently may be rejected if the water it seeks to appropriate is not flowing through a known and definite channel.

Division 2 of Part 5 of the California Water Code, commencing with section 4999, requires every person who extracts ground water within the counties of Riverside, San Bernardino, Los Angeles, and Ventura in excess of 25 acre-feet per annum (with certain exceptions) to file a notice with the SWRCB on forms provided by the SWRCB. Copies of the SWRCB's rules, together with further information concerning this requirement, may be obtained on request.

Every person who intends to dig, bore, drill, deepen, or reperforate a water well must file a notice of intent with the California Department of Water Resources. The notice must be filed on forms furnished by the Department and must contain information required by the Department. A report of completion also must be filed with the Department on forms furnished by the Department and containing information required by it (California Water Code sections 13750, 13751). These requirements also apply to any person who converts, for use as a water well, any oil or gas well originally constructed under the jurisdiction of the California Department of Conservation pursuant to the provisions of Article 4, Chapter 1, Division 3 of the California Public Resources Code. Further information or forms may be obtained from the California Department of Water Resources, Division of Planning, Post Office Box 942836, Sacramento, CA 942360001.

SPRING WATER

Courts have held that water in springs and standing pools which have no natural outlet belong to the owner of the land on which these sources are located (see State v. Hansen, 189 Cal. App. 2d 604). Such water may be used without obtaining a permit.

If a spring contributes to a flowing stream, either by surface or subterranean means, the doctrine of correlative rights applies between the owner of the spring and those riparian to the stream. The right of the owner of a spring likewise is correlative with the right of those using ground water which supplies the spring. A Statement of Water Diversion and Use should be filed for such use.

NO ASSISTANCE RENDERED IN SECURING RIGHT OF ACCESS TO POINT OF DIVERSION OR RIGHT-OF-WAY

The SWRCB will not assist in the matter of securing right of access to the stream or other source of supply, or in securing rights-of-way for ditches and conduit lines. In accepting an application or in issuing a permit, the SWRCB does not affirm that the applicant or permittee has right of access to the source of supply or necessary rights-of-way. The SWRCB will accept an application for filing before right of access has been secured. The SWRCB, however, may refuse to approve the application when the applicant apparently will be unable to secure right of access (see Title 23 of the California Code of Regulations, sections 775, 776, and 777).

PATENTS AND HOMESTEADS

All patents granted or homesteads allowed by the U. S. Bureau of Land Management shAll be subject to any vested and accrued water rights as may have been recognized and acknowledged by the local customs, laws, and decisions of courts (30 USCA 278, 287).

SUPERVISION OVER DAMS

Division 3 of the California Water Code, commencing with section 6000 et seq., requires that construction or enlargement of any dam over a certain height and storage capacity shall not be commenced without written approval of the plans and specifications by the California Department of Water Resources. The California Department of Water Resources ordinarily will require a statement that the SWRCB is satisfied as to the adequacy of the water right.

Dams subject to supervision are as follows:

1. Dams which are 25 feet or more in height from downstream toe to spillway level provided they store more than 15 acrefeet of water.

2. Dams which store 50 acre-feet or more of water provided they are more than 6 feet in height from downstream toe to spillway crest.

Further information concerning construction or enlargement of any dam may be obtained from the California Department of Water Resources, Division of Safety of Dams, Post Office Box 942836, Sacramento, CA 94236-0001.

Further information concerning construction or enlargement of any dam may be obtained from the California Department of Water Resources, Division of Safety of Dams, Post Office Box 942836, Sacramento, CA 94236-0001.

PROVISIONS OF FISH AND GAME CODE

The owner of a dam is required to allow sufficient water to pass downstream at all times in order to keep fish below in good condition (section 5937, Article 2, Chapter 3, Part 1, Division 6 of the California Fish and Game Code). For purposes of Article 2, "dam" includes all artificial obstructions. Further information relating to the requirements of the California Department of Fish and Game may be obtained from local game wardens or from the California Department of Fish and Game, 1416 Ninth Street, Sacramento, CA 95814.

STATEMENTS OF WATER DIVERSIONS AND USE

All diverters of surface water, with certain exceptions, are required to file a Statement of Water Diversion and Use with the SWRCB (see Division 2 of Part 5.1 of the California Water Code). The requirement applies to water diverted under claim of riparian right and to appropriations initiated prior to December 19, 1914, the effective date of the California Water Commission Act. Forms may be obtained from the Division of Water Rights, Post Office Box 2000, Sacramento, CA 95812-2000. One purpose of filing Statements of Water Diversion and Use is to make a public record of all surface diversions not already on file with or known to the SWRCB. The following types of diversions are excluded from the requirement:

1. From a spring which does not flow off the property on which it is located.

2. Covered by an application, permit, or license to appropriate water on file with the SWRCB.

3. Included in a notice filed under the recordation of ground water extractions law (Division 2 of Part 5 of the California Water Code) in the counties of Riverside, San Bernardino, Los Angeles, and Ventura.

4. Regulated by a watermaster appointed by the California Department of Water Resources.

5. Reported by the California Department of Water Resources in its hydrologic data bulletins.

6. Included in the consumptive use data for the delta lowlands published by the California Department of Water Resources in its hydrologic data bulletins.

7. Included in annual reports filed with a court or the SWRCB by a watermaster appointed by a court or pursuant to statute to administer a final judgement determining rights to water, which reports identify the persons who have diverted water and give the general place of use and the quantity of water which has been diverted from each source.

8. For use in compliance with the provisions of Article 2.5 (commencing with section 1226) of Chapter 1 of Part 2 of Division 2 of the California Water Code concerning stockponds.

A statement should be completed for diversions during a calendar year and should be filed before July 1 of the following year. Supplemental statements are required at three-year intervals thereafter.

STOCKPOND RIGHTS

The stockpond program was 'sunset' by the Legislature as of December 31, 1997.

Under certain conditions, the owners of stockponds having a capacity of not more than 10 acre-feet as of January 1, 1975 which were constructed prior to 1969 have a valid water right. Prior to January 1, 1975, a right for seasonal storage of water in a reservoir of any kind could be obtained only by appropriating the water through the application-permit-license procedure, and this is still the only way to obtain a water right for stockponds constructed after January 1, 1969 or which are larger than 10 acre-feet. Claims of rights for such stockponds and applications for this certification should be filed with the SWRCB. The priority of the right will be subject to other stockpond water rights on which certificates have been issued by the SWRCB with an earlier priority, to appropriative water rights with an

earlier priority, and to riparian rights. The priority of the right will be the date the claim is filed. Ponds which were the subject of water right litigation between private parties prior to January 1, 1974 are excluded.

Before a certificate of validity of the stockpond right is issued, the SWRCB will verify the location of the pond, its capacity, and that it is used primarily for stockwatering purposes. In some cases, a field investigation is necessary. The original certificate will be filed with the SWRCB and will be available for public inspection. A copy of the certificate will be mailed to the owner of the stockpond. So that the records may be reasonably current, a statement of continued existence of the pond and its use for stockwatering will be solicited from the owner as determined by the SWRCB (currently every 10 years). If the water has ceased to be used primarily for stockwatering, the SWRCB may revoke the certificate after notice and an opportunity for hearing.

A reasonably accurate estimate of the capacity of a stockpond of 10 acre-feet or less can be computed by use of the "onethird rule' as follows:

Stockpond capacity in acre-feet = 1/3 height of dam to spillway crest, in feet, multiplied by the surface area of pond when full, in acres.

GENERAL INFORMATION PERTAINING TO APPLICATIONS FOR PERMITS TO APPROPRIATE UNAPPROPRIATED WATER

The following information describes the statutory procedure for acquiring appropriative water rights. It is intended as a guide for persons who propose to take water from a surface or underground source or who are uncertain as to the validity of their present taking. Those who are not already familiar with the procedure should carefully read this information.

WHO SHOULD FILE AN APPLICATION

Since December 19, 1914, the appropriation of water in surface streams and other surface bodies of water and in subterranean streams flowing through known and definite channels has been governed by the California Water Commission Act (Statutes 1913, Chapter 586) now contained in the provisions of the California Water Code.

New legislation, effective January 1, 1989, modified the California Water Code to provide two methods of appropriating water through the California State Water Resources Control SWRCB. Provisions were added to the law for registering small domestic use appropriations, rather than applying for a water right permit under the existing process.

Small domestic use includes normal domestic use, plus incidental stockwatering of domestic animals and incidental irrigation of one-half acre or less of lawn, garden, and pasture at any single establishment, not exceeding 4,500 gallons per day by direct diversion or 10 acre-feet per annum by storage, the latter including incidental aesthetic, recreational, or fish and wildlife enhancement purposes. Refer to the SWRCB's booklet, "How to File an Application/ Registration to Appropriate Water in California" for specific information on filing for a permit or for registering a small domestic use appropriation.

Anyone who intends to divert water from surface waters or subterranean streams flowing in known and definite channels, either (1) directly to use on land which is not riparian to the source, (2) to storage in a reservoir for later use on either riparian or nonriparian land, or (3) for direct use of water which would not naturally be in the source, should apply with the SWRCB for a permit or small domestic use registration as the first step toward securing an appropriative water right. Persons diverting water under riparian or pre-1914 claims of right, with certain exceptions,

are required to file a Statement of Water Diversion and Use with the SWRCB.

WHO SHOULD NOT FILE AN APPLICATION

Underground water is not subject to the permit procedure unless it is the underflow of a surface stream or otherwise is flowing in a subterranean stream with a known and definite channel. One who proposes to pump ground water (with the exceptions noted) should not file an application. Anyone who pumps ground water in the counties of Riverside, San Bernardino, Los Angeles, and Ventura, with certain exceptions is required to file a notice with the SWRCB (see section 4999 of Division 2 of the California Water Code).

A permit is not required for the proper exercise of a riparian right. Diverters of.surface water, with certain exceptions, are required to file a Statement of Water Diversion and Use with the SWRCB.

PURPOSE OF FILING

The purpose of filing an application for a permit is to secure a right to the use of unappropriated water; i.e. water that is available and is not already in use under prior and existing rights. The purpose of filing also is to establish a record of the right sought under the application so that its status in relation to other rights may be determined more readily. One who takes and uses water without possession of a valid right or first obtaining a permit does so at his own risk and is subject to possible court action to enjoin his use.

An application should not be filed in order to adjust a dispute which has arisen over water. Permits issued by the SWRCB cannot serve to ratify or confirm existing rights claimed by the applicant.

WHEN TO FILE

An application should be filed well in advance of construction of diversion works. An application, however, should not be filed until a definite plan has been formulated for construction of a project for use of water within a reasonable time in the future. What is reasonable depends on the size of the project and the circumstances of each case. In every case, the applicant should be prepared to commence construction work within the time ordered by the SWRCB and thereafter to complete construction and use of water with diligence. For most privately-owned projects designed to serve the individual needs of the applicant, the SWRCB will require actual construction to commence within a few months after issuance of permit. The filing of an application cannot serve to reserve water for an indefinite future use. Requests for undue delay in final disposition of an application will be denied.

UNAPPROPRIATED WATER AND RESPONSIBILITIES OF PERMITTEES

All applications are for permits to appropriate unappropriated water, and all permits are issued subject to vested rights. In order for the SWRCB to approve an application, unappropriated water must be available to supply the applicant. Water in many streams already has been fully appropriated during the dry seasons of the year. If there is doubt whether unappropriated water is available, the SWRCB's staff should be consulted before an application is filed.

The flow of water in most streams is variable and cannot be predicted with accuracy. Approval of an application and issuance of a permit thus does not guarantee that unappropriated water will be available at all times in the full amount specified in the permit. In some cases, there may be times during the authorized diversion season when no unappropriated water will be available. The holder of a permit should be prepared to accept responsibility for

diverting only to the extent and at such times as will not

Impair the prior rights of others, regardless of the amount or season named in the permit. The holder of the permit likewise must defend the right if it is attacked by others. A water right is a property right, and the owner has the same obligation to defend it against encroachment as in the case of any other kind of property.

OUTLINE OF ESSENTIAL STEPS

The California Water Code and the regulations adopted pursuant thereto prescribe a definite procedure for the initiation and consummation of rights to appropriate water by permit. The essential steps are as follows:

Appropriation bv Permit:

1. An application is filed with SWRCB on forms provided. If the application is not complete, failure to complete it within the time allowed by the SWRCB will result in cancellation.

2. Notice of application is issued by the SWRCB and is posted or published by the applicant, depending on the size of the project.

3. If protests are received which cannot otherwise be adjusted, a hearing or an investigation under a proceeding in lieu of hearing is held. At the discretion of the SWRCB, a hearing also may be held on an unprotested application.

4. The application is reviewed and analyzed for possible environmental impacts as required by the California Environmental Quality Act of 1970.

5. If an application is approved and permit fees paid, a permit is issued. A reasonable time is allowed within which to begin construction of the diversion works, complete the construction, and make full beneficial use of the water. These times may be extended upon request if there are good reasons for doing so. Failure to comply with the time requirements or other-permit terms will be investigated by the SWRCB, and findings against the permittee may result in revocation of the permit.

All permits are issued SUBJECT TO PRIOR RIGHTS, and the permittee is required to respect all prior rights when diverting under the permit.

6. When construction and use of water are complete to the full extent contemplated, an inspection is made for possible issuance of a license. To the extent that beneficial use of the water has been made, as to both amount and season as specified in the terms and conditions of permit, a license may be issued.

A license has no time limit and continues as long as proper use is made for the water and required reports are submitted.

Statutes provide that, under certain conditions, a license may be lost through a five-year period of nonuse.

Appropriation by Registration:

l. Forms to file for appropriation of water by registration are provided by the SWRCB.

2. The Environmental Services Supervisor for the California Department of Fish and Game region in which the diversion will be located (map, address, and telephone number are included on the form) is contacted to discuss the proposed project and to obtain answers to the questions contained on the Fish and Game Information form.

3. Registration forms are filed with both the State Water Resources Control SWRCB and the regional office of the California Department of Fish and Game.

4. If the registration is complete, fees have been paid, and written approval has been received from both the SWRCB and the California Department of Fish and Game, construction of the project may begin and diversion of water made.

5. If the forms are not complete, failure to complete them within the time allowed by the SWRCB will result in the return of all materials and fees.

PREPARATION OF APPLICATIONS

The SWRCB publishes a pamphlet entitled, "How to File an Application/Registration to Appropriate Water in Californians which will be of assistance in completing the blanks of an application form. When an application fails to comply with provisions of the California Water Code, the application will not be accepted for filing.

CHANGES IN OWNERSHIP

The SWRCB must be able to communicate with a registrant, applicant, permittee, or licensee. Any changes in ownership or address therefore should be submitted promptly to the SWRCB.

The SWRCB will not settle contests as to ownership but will accept any ownership claim, which is asserted unless the owner of record or an asserted successor objects. In case of contest the SWRCB's record will not be changed until the matter is settled by agreement or by a court decision.

APPENDIX - TABLE OF EQUIVALENTS

1 CUBIC FOOT PER SECOND (cfs) is a rate of flow passing any point equal to a volume of one cubic foot of water every second (sometimes referred to as second-foot) and is equivalent to:

= 7.48 U.S. gallons per second (gps)

= 448.8 U.S. gallons per minute (gpm)

= 646,317 U.S. gallons per day (gpd)

= 1.98 acre-feet per day

= 40 standard (statute) miners' inches

= 28.32 liters per second

1 ACRE-FOOT (af) is the amount (volume) of water which will cover one acre to a depth of one foot and is equivalent to:

= 43,560 cubic feet

= 325,851 U.S. gallons

= 1,233.45 cubic meters

1,000,000 U. S. GALLONS PER DAY is equivalent to:

= 1.55 cubic feet per second

= 43.81 liters per second

= 3.07 acre-feet per day

= 3,786 cubic meters per day

THEORETICAL HORSEPOWER is calculated by multiplying the vertical fall of water in feet by the rate of waterflow in cubic feet per second and dividing the product by 8.8. One horsepower is equivalent to:

= 550 foot-pounds per second

= 746 watts

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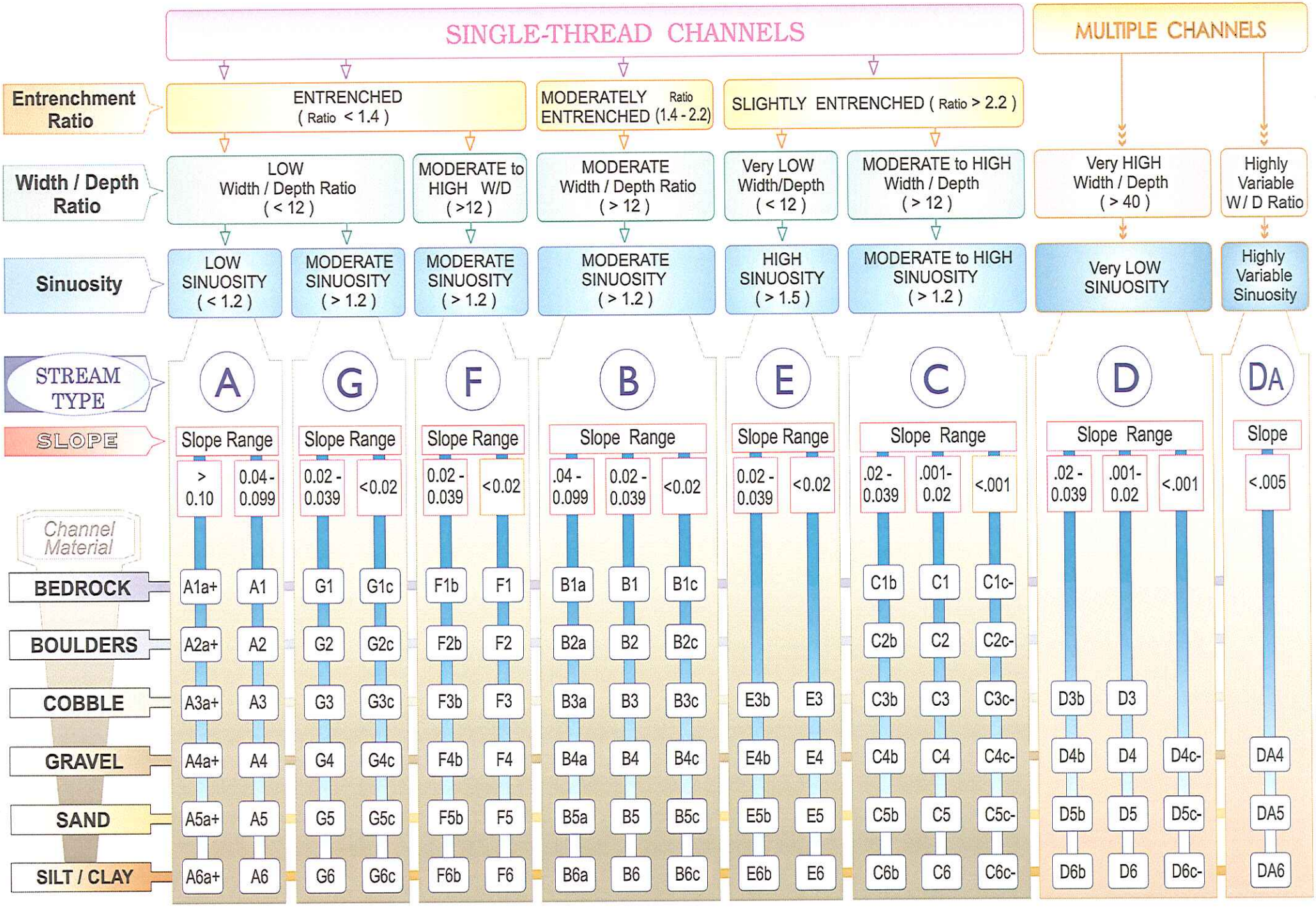
APPENDIX D

Rosgen Classification System Information



KEY to the ROSGEN CLASSIFICATION of NATURAL RIVERS. As a function of the "*continuum of physical variables*" within stream reaches, values of ***Entrenchment*** and ***Sinuosity*** ratios can vary by +/- 0.2 units; while values for ***Width / Depth*** ratios can vary by +/- 2.0 units.

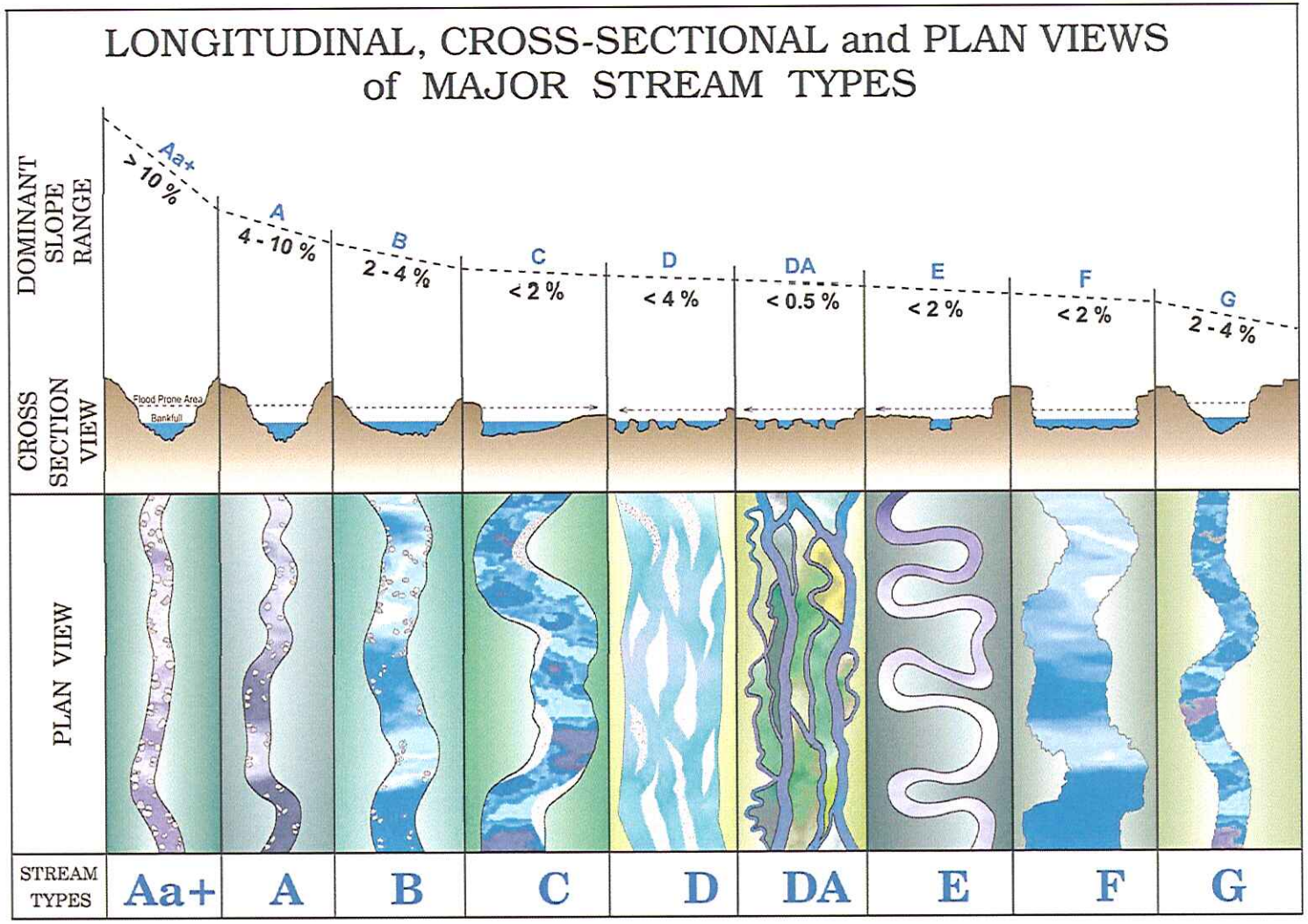
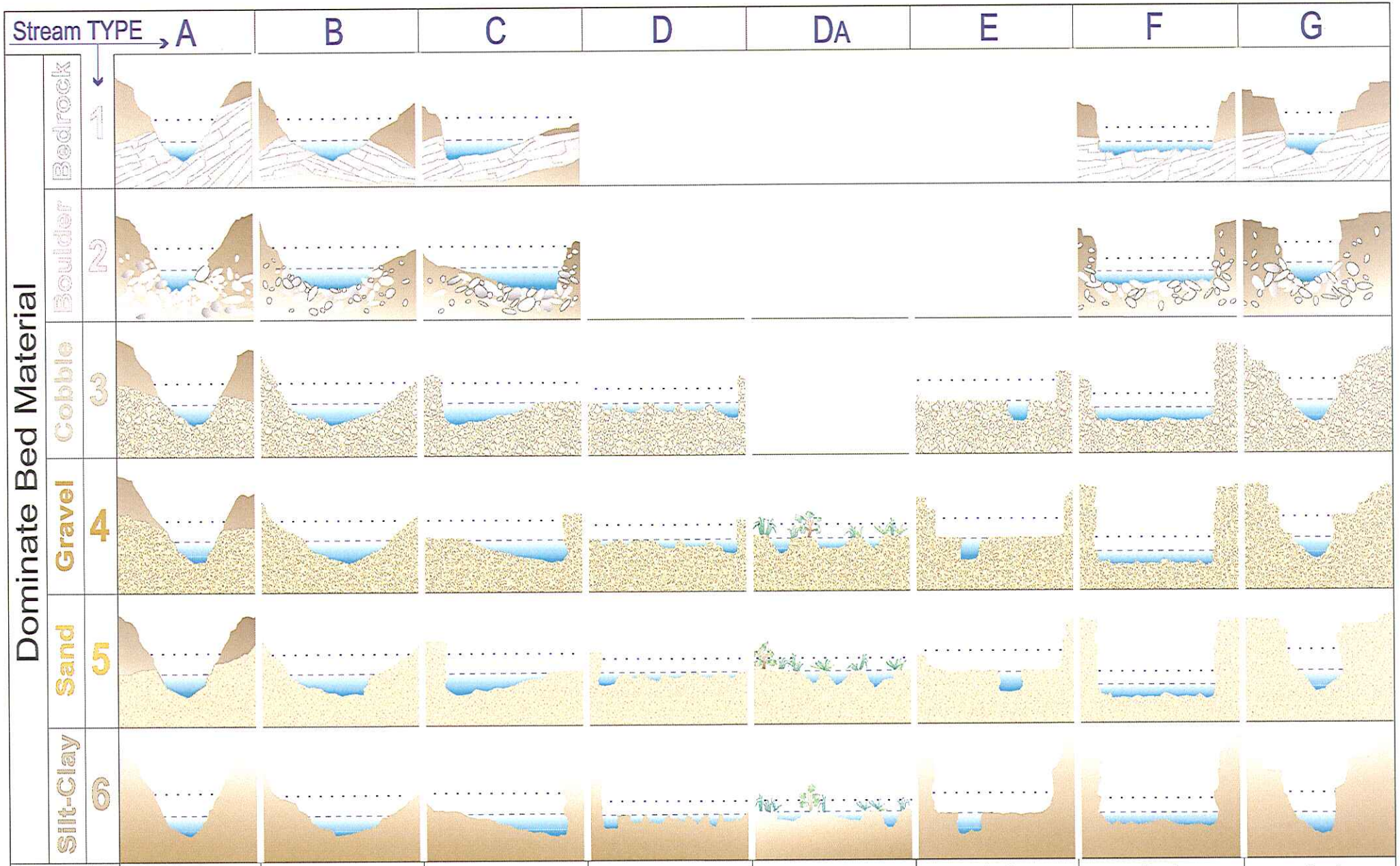


Figure 14. Broad level stream classification delineation showing longitudinal, cross-sectional, and plan views of major stream types. (From Rosgen, 1994) (Applied River Morphology, 1996, David L. Rosgen, Wildland Hydrology, Inc.).



	A	B	C	D	DA	E	F	G
Entrchmnt.	< 1.4	1.4 - 2.2	> 2.2	n/a	> 4.0	> 2.2	< 1.4	< 1.4
W/D Ratio	< 12	> 12	> 12	> 40	< 40	< 12	> 12	< 12
Sinuosity	1 - 1.2	> 1.2	> 1.2	n/a	variable	> 1.5	> 1.2	> 1.2
H_2O Slope	.04-.099	.02-.039	< .02	< .04	<.005	< .02	< .02	.02-.039

ROSGEN LEVEL II STREAM CLASSIFICATION

The following provides a brief overview of the Rosgen Level II stream classification system used to type the study stream.

The Rosgen Level II classification is based on delineative criteria derived from the characteristics of the channel cross-section, longitudinal profile, and planform features. Stream classification is based on the following five morphometric parameters:

- **Entrenchment Ratio** – describes the degree of vertical containment of the channel in its valley. Entrenchment ratio is computed as the width of the flood prone area at an elevation twice the maximum bankfull depth divided by the top width of the bankfull channel. Low entrenchment values indicate that the channel is vertically constrained, whereas high entrenchment ratio indicate that the channel can greatly enlarge its width during high flow events.

- **Width-Depth Ratio** – is an index of the channel cross-sectional shape, and is computed as the ratio of the bankfull width/mean bankfull depth. High values indicate the channel is relatively broad and shallow, whereas low values indicate that the channel is narrow and deep. Channel shape affects the distribution of energy within the channel. Channels with a high width-depth ratio tend to develop shear stress near the banks, while low width-depth ratio indicate shear stress is more distributed across the bed.

- **Water Surface Slope** (i.e., gradient) – is the water surface gradient at bankfull discharge (usually approximated by the bed slope or valley slope). Gradient is a significant factor representing the potential energy of the channel, which strongly influences sediment transport capacity.

- **Sinuosity** – is a characterization of the channel planform, and is calculated as the stream length divided by the valley length. Higher sinuosity is associated wit a meandering channel planform, and lower sinuosity is associated with straighter channels. Sinuosity carries the least weight of the four parameters in the Rosgen classification system.

- **Channel Materials** – is defined by the dominant bed particle size within the bankfull channel width. The pebble count field method is typically used to determine the size distribution of channel materials. The classification system recognizes 6 dominant particle size classes; bedrock, boulders, cobble, gravel, sand, and silt/clay

The Level II classification uses a discrete range of values derived from the above suite of morphologic parameters to define specific stream types. Using the morphometric parameters described above, stream reaches are classified into 7 major stream types (Aa+ through G) based on Rosgen's 1996 criteria. The major stream types are discussed below.

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Rosgen Stream Type Classifications

A description of the physical and stream process characteristics for each of the major Rosgen stream types is provided below.

Aa+ Stream Type

This stream type typically occurs in debris avalanche terrain, zones of deep deposition such as glacial tills and outwash terraces, or landforms that are structurally controlled or influenced by faults, joints, or other structural contact zones. Aa+ channels are characterized by very high gradients (>10%), high entrenchment (low entrenchment ratio (<1.4)), low sinuosity (1.0–1.1), and a low width-to-depth ratio (<12). The bedforms associated with this stream type are typically cascade or step/pool morphology with vertical steps and deep scour pools. Aa+ channels are typically described as high-energy/high-sediment supply systems due to the steep channel slopes and narrow/deep channel cross-sections.

A Stream Type

This stream type typically occurs in areas of high relief, zones of deep deposition, or landforms that are structurally controlled. A channels are characterized by moderate to steep gradients (4-10%), high entrenchment (low entrenchment ratio (<1.4)), low sinuosity (1.0–1.2), and a low width-to-depth ratio (<12). The bedforms associated with this stream type are typically cascade or step/pool morphology with associated plunge or scour pools. A stream types typically exhibit a high energy/high sediment transport potential and a relatively low in-channel sediment storage capacity.

B Stream Type

This stream type primarily exists on moderately steep to gently sloped terrain in areas where structural contact zones, faults, joints, colluvial-alluvial deposits, and structurally controlled valley side-slopes limit the development of a wide floodplain. B channels are characterized by moderate to steep slopes (2-10%), moderate entrenchment (entrenchment ratio of 1.4–2.2), low sinuosity (>1.2), and a moderate width-to-depth ratio (>12). The bedforms associated with this stream type are typically rapids and scour pool morphology which may be influenced by debris constrictions and local confinement. Streambank erosion rates are typically low, and are generally considered to be vertically and laterally stable, particularly when the dominant bed particle size is bedrock, and boulder.

C Stream Type

This stream type is primarily found in narrow to wide valleys constructed by alluvial deposition. C channels are characterized by gentle slopes (<2%), low entrenchment (high entrenchment ratio (>2.2)), relatively high sinuosity (>1.4), and a high width-to-depth ratio (>12). The bedform associated with this stream type is typically a pool-riffle morphology that is linked to the meander geometry of the river. These channel types have well-developed floodplains and characteristic point bars within the active channel. The channel aggradation/degradation and lateral extension processes are dependent

on and sensitive to changes in the natural stability of streambanks, existing conditions in the upstream watershed, and the flow and sediment regime.

D Stream Type

This stream type is typically found in landforms and valleys consisting of steep depositional fans, steep glacial trough valleys, glacial outwash valleys, broad alluvial mountain valleys, and deltas. D channels consist of a multiple channel system which exhibit a braided or bar braided pattern with a very high width-to-depth ratio (>40) and relatively low gradient (<4%). These channels occur in areas where sediment supply exceeds the sediment transport capacity and in areas where the hydrology is typically flashy. Multiple channel features are displayed as a series of various bar types and unvegetated islands that shift positions frequently during runoff events. Adjustments to the channel patterns are related to changes in the encompassing landform, contributing watershed area, or the existing channel system.

DA (Anastomosed) Stream Type

This stream type is found in broad, low gradient valleys developed on or within lacustrine deposits, river deltas, and fine grained alluvial deposits. DA channels consist of multiple-thread channel system with a very low stream gradient (<0.5%) and low entrenchment (high entrenchment ration (>2.2)). The bedform associated with this stream type typically has a pool-riffle morphology. Stream banks are typically very stable and are often constructed of cohesive, fine-grained materials which support dense-rooted vegetation. Lateral migration rates of the individual channels are very low except for infrequent avulsion. The ratio of bedload to total sediment load is very low.

E Stream Type

This stream type is found in gently sloping alluvial valleys in areas ranging from high elevation alpine meadows to low elevation coastal plains. E channels are characterized by low stream gradient (<2%), low entrenchment (high entrenchment ratio (>2.2)), very high sinuosity (>1.5), and low width-to-depth ratio (<12). The bedform features predominately consist of riffle-pool reaches with a wide floodplain. These channels are considered highly stable, but are sensitive to changes in the natural stability of streambanks, existing conditions in the upstream watershed, and the flow and sediment regime.

F Stream Type

This stream type is found in gently sloping, deeply incised valleys typically consisting of highly weathered rock and/or erodible alluvial/colluvial materials. F channels are characterized by low stream gradient (<2%), high entrenchment (low entrenchment ratio (<1.4)), very high sinuosity (>1.4), and high width-to-depth ratio (>12). The bedform features predominately consist of riffle-pool reaches. These channels can develop very high bank erosion rates, lateral extension rates, significant bar deposition, and accelerated channel aggradation and/or degradation and provide for very high sediment supply and storage capacities.

G Stream Type

This stream type is found in a variety of land-types including alluvial fans, debris cones, meadows, or channels within older relic channels. The G channel type can also occur as narrow deep gorges on larger rivers when the predominant bed material is bedrock or boulder. G channels are characterized by moderate stream gradient (2-4%), high entrenchment (low entrenchment ratio (<1.4)), relatively low sinuosity (>1.2), and low width-to-depth ratio (<12). With the exception of those channels containing bedrock and boulder, these stream types have very high bank erosion rates and high sediment supply. Channel degradation and side-slope rejuvenation processes are typical. The G stream type generates high bedload and suspended sediment transport rates.

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General Stream Type Descriptions and Delineative Criteria for Classification

Stream Type	General Description	Entrenchment Ratio	W/D Ratio	Sinuosity	Slope	Landform/ Soils/Features
Aa+	Very steep, deeply entrenched, debris transport, torrent streams.	<1.4	<12	1.0 to 1.1	>.10	Very high relief. Erosional, bedrock or depositional features; debris flow potential. Deeply entrenched streams. Vertical steps with deep scour pools; waterfalls.
A	Steep, entrenched, cascading, step/pool streams. High energy/debris transport associated with depositional soils. Very stable if bedrock or boulder dominated channel.	<1.4	<12	1.0 to 1.2	.04 to .10	High relief. Erosional or depositional and bedrock forms. Entrenched and confined streams with cascading reaches. Frequently spaced, deep pools in associated step/pool bed morphology.
B	Moderately entrenched, moderate gradient, riffle dominated channel, with infrequently spaced pools. Very stable plan and profile. Stable banks.	1.4 to 2.2	>12	>1.2	.02 to .099	Moderate relief, colluvial deposition, and/or structural. Moderate entrenchment and WID ratio. Narrow, gently sloping valleys. Rapids predominate w/scour pools.
C	Low gradient, meandering, point-bar, riffle/pool, alluvial channels with broad, well-defined floodplains.	>2.2	>12	>1.4	<.02	Broad 'valleys \\'/terraces, in association with floodplains, alluvial soils. Slightly entrenched with well-defined meandering channels. Riffle/pool bed morphology.
D	Braided channel with longitudinal and transverse bars. Very wide channel with eroding banks.	N/A	>40	N/A	<.04	Broad valleys with alluvium, steeper fans. Glacial debris and depositional features. Active lateral adjustment, w/abundance of sediment supply. Convergence/divergence bed features, aggradational processes, high bedload and bank erosion.
DA	Anastomosing (multiple channels) narrow and deep with extensive, well vegetated floodplains and associated wetlands. Very gentle relief with highly variable sinuosities and width/depth ratios. Very stable streambanks.	>2.2	Highly variable	Highly variable	<.005	Broad, low-gradient valleys with fine alluvium and/or lacustrine soils. Anastomosed (multiple channel) geologic control creating fine deposition w/well-vegetated bars that are laterally stable with broad wetland floodplains. Very low bedload, high wash load sediment.
E	Low gradient, meandering riffle/pool stream with low width/depth ratio arid little deposition. Very efficient and stable. High meander width ratio.	>2.2	<12	>1.5	<.02	Broad valley/meadows. Alluvial materials with floodplains. Highly sinuous with stable, well-vegetated banks. Riffle/pool morphology with very low width/depth ratios.
F	Entrenched meandering riffle/pool channel on low gradients with high width/depth ratio.	<1.4	>12	>1.4	<.02	Entrenched in highly weathered material. Gentle gradients, with a high width/depth ratio. Meandering, laterally unstable with high bank erosion rates. Riffle/pool morphology.
G	Entrenched gully step/pool and low width/depth ratio on moderate gradients.	<1.4	<12	>1.2	.02 to.039	Gullies, step/pool morphology w/moderate slopes and low width/depth ratio. Narrow valleys, or deeply incised in alluvial or colluvial materials, i.e., fans or deltas. Unstable, with grade control problems and high bank erosion rates.

Source: Rosgen 1996.