

Revised Study Plan

Susitna-Watana Hydroelectric Project

FERC No. 14241

Appendix 5

Mapping References



December 2012

RSP BASE MAP REFERENCES

Category	Data Source	Date	File Name and Description
Administrative Boundaries	Alaska Department of Natural Resources, Information Resource Management Section	2012-07-11	DNR_Legislatively_Designated_Area: Land parcels within the State of Alaska contained by the Legislatively Designated Area category.
	National Park Service, Alaska Regional Office, Land Resources Program Center	2012-03-27	ParkOutline: Statewide summary of all National park, preserve, monument and current wilderness boundaries.
	U.S. Department of Interior, Bureau of Land Management, Division of Support Services, Branch of Information Resource Management	2008-02-04	DNR_section83: Protracted section grid for Alaska.
	U.S. Department of Interior, Bureau of Land Management, Division of Support Services, Branch of Information Resource Management	2008-02-04	DNR_township83: Protracted township grid for Alaska.
Cities, Towns, Villages	Alaska Department of Transportation and Public Facilities, Statewide GIS Mapping Section	1999	DNR_akplacenames: Historic cities, towns, villages, and camps throughout the State of Alaska.
Elevation	MWH Global	2012-09-27	RSP_corridor_contours_20ft: Contours at 20-foot intervals derived from the IFSAR elevation data set.
Hydrography	Alaska Department of Natural Resources, Division of Mining and Water, Information Resource Management Section	1995-10-05	Susitna_Drainage_Basin: Subset of the Hydrologic Unit Code (HUC) dataset showing entire Susitna drainage basin.
	Alaska Department of Natural Resources, Information Resource Management Section	1998	DNR_Hydrography_LINE: Alaska hydrography lines from USGS 1:2,000,000 Digital Line Graphs (DLG)
	Alaska Department of Natural Resources, Information Resource Management Section	1998	DNR_Hydrography_POLYGON: Alaska hydrography polygons from USGS 1:2,000,000 Digital Line Graphs (DLG)
	R&M Consultants, Inc.	1981-12	River_Mile_Index_1981: River miles as published in "Attachment D: Susitna River Mile Index, Mouth to Susitna Glacier" (ARLIS document SUS131.pdf).
	U.S. Geological Survey in cooperation with U.S. Environmental Protection Agency, USDA Forest Service, and other Federal, State and local partners	2011-12 download	NHDFlowline: National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches for the nation's surface water drainage system; clipped to the Susitna Basin.
	U.S. Geological Survey in cooperation with U.S. Environmental Protection Agency, USDA Forest Service, and other Federal, State and local partners	2011-12 download	NHDWaterbody: National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches for the nation's surface water drainage system; clipped to the Susitna Basin.

Category	Data Source	Date	File Name and Description
Imagery/Raster	University of Alaska Fairbanks, Geographic Information Network of Alaska; Matanuska-Susitna Borough GIS	2011	Matanuska Susitna Borough LiDAR/Imagery Project: 2011 high resolution Light Detection and Ranging (LiDAR) and aerial photography data collected by the Matanuska-Susitna Borough from mouth of Susitna River to the area of the proposed Susitna-Watana Hydroelectric Project in 2011. Imagery mosaic available as a 1 ft, ortho-rectified, 4-band imagery for the entire 3680 sq/mi area, terrain corrected against the LiDAR elevation model during the 2011 collection. http://matsu.gina.alaska.edu .
	National Park Service, Alaska Regional Office	2008-08-07	aknedft_sli: USGS National Elevation Dataset (NED) for Alaska (integer grid with elevation values in feet).
	National Park Service, Alaska Regional Office	2008-08-07	aknedft_slihs: Hillshade of the USGS National Elevation Dataset (NED) for Alaska (integer grid with elevation values in feet).
Land Status	U.S. Department of Interior, Bureau of Land Management, Division of Support Services, Branch of Information Resource Management	2011-09-06	genstat: Generalized land status pattern for Alaska with respect to Federal, State, and Native Lands.
Project Location Facilities and Operations	HDR Alaska, Inc.	2010	SUWA_DamSites: Proposed Watana Dam site from Alaska DOT&PF baseline data for the evaluation of Watana Transportation Access Study.
	MWH Global	2012-08-29	RSVR_Max_Pool_2050ft: Proposed maximum water level (elevation 2,050 feet) for the reservoir. From MatSu LiDAR and IFSAR data.
	MWH Global	2012-10-26	RSP_Corridors_10_26_12: Study area corridors for the proposed roads; transmission lines; dam and camp facility areas; and 2,050 reservoir max pool elevation.
Transportation	Alaska Department of Transportation and Public Facilities	2012-06-12	DOT_RoadSystem_06121: Alaska DOT&PF road centerlines for Alaska.
	U.S. Census Bureau; Matanuska-Susitna Borough GIS	2009-07	matsu_railroad: Portion of the Alaska Railroad Corporation's track centerline that lies within the Matanuska-Susitna Borough.

RSP MAP FIGURE DATA

Figure No.	Figure Name	Data Source	Date	File Name and Description
1.2-1	Susitna-Watana Corridor Study Areas	MWH Global	2012-8-29	RSVR_Watana_Dam: Proposed Watana Dam location.
		National Geographic Society	2010	Physical World: NGS USA Topographic Map.
5.5-1, 5.6-1	Stream water quality and temperature data collection sites overview	Tetra Tech	2012-04-26	WQ_TempSites1980s: Proposed water temperature and collection sites used previously in 1980s.
		Tetra Tech	2012-04-26	WQ_TempSampLoc80-82_TTmod: Proposed water temperature and collection sites.
A-1 to 34 Attachment	Water quality sampling sites	Tetra Tech	2012-04-26	WQ_TempSites1980s: Proposed water temperature and collection sites used previously in 1980s.
		Tetra Tech	2012-04-26	WQ_TempSampLoc80-82_TTmod: Proposed water temperature and collection sites.
B1-1 to 10 Attachment	Instream Flow Study Focus Areas	R2 Resource Consultants, Inc.	2012-11-27	IFS_FocusAreas: Upper and lower extent of Instream Flow Study Focus Areas in the Middle Susitna River Segment.
		R2 Resource Consultants, Inc.	2012-11-26	PRM_MS_MainChannel: Project River Mile (PRM) route for the Susitna River mainstem main channel.
B1-11 Attachment	Stream water quality and temperature data collection sites overview	Tetra Tech	2012-04-26	WQ_TempSites1980s: Proposed water temperature and collection sites used previously in 1980s.
		Tetra Tech	2012-04-26	WQ_TempSampLoc80-82_TTmod: Proposed water temperature and collection sites.

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Figure No.	Figure Name	Data Source	Date	File Name and Description
6.5-7	Susitna-Watana access corridors	Tetra Tech	2012-10-04	Federal_Lands: Digitized from Figure 1-1 provided by Bill Fullerton (Tetra Tech) and Kathy Dube (Watershed Geodynamics).
		Tetra Tech	2012-10-04	Private_Lands: Digitized from Figure 1-1 provided by Bill Fullerton (Tetra Tech) and Kathy Dube (Watershed Geodynamics).
		Tetra Tech	2012-10-04	State_Lands: Digitized from Figure 1-1 provided by Bill Fullerton (Tetra Tech) and Kathy Dube (Watershed Geodynamics).
		ESRI; Federal Railroad Administration, Bureau of Transportation Statistics	unknown	railroads: Susitna area railroad infrastructure.
		ESRI via U.S. National Atlas of the U.S. and U.S. Geological Survey	2003-01	PLSS_Grid: Protracted section grid for Alaska.
6.6-3	Middle Susitna River Segment Instream Flow Study Focus Areas	R2 Resource Consultants, Inc.	2012-11-05	IFS_RiverSegments_General: General alignment of Susitna River Segments (Upper, Middle, and Lower) as derived from NHD hydrography layer.
		Tetra Tech	2012-04-18	SusitnaRiverReaches: Geomorphic Reach delineations for the Upper, Middle, and Lower Susitna River Segments.
8.5-6, 7	Instream flow transects and model types applied during the 1980s Su-Hydro studies	R2 Resource Consultants, Inc.	2012-11-13	IFS_HistFlowBreach: Breaching flows based on 1980s studies in Side Channel 11, Slough 11/14, and Whiskers Slough complex.
		R2 Resource Consultants, Inc.	2012-10-18	IFS_HistTransects: Instream flow transects and associated model types in Side Channel 11, Slough 11/14, and Whiskers Slough complex during 1980s studies.
		R2 Resource Consultants, Inc.	2012-11-26	PRM_MS_MainChannel: Project River Mile (PRM) route for the Susitna River mainstem main channel.
8.5-9	Upper, Middle and Lower Susitna River Segments	R2 Resource Consultants, Inc.	2012-11-05	IFS_RiverSegments_General: General alignment of Susitna River Segments (Upper, Middle, and Lower) as derived from NHD hydrography layer.

Figure No.	Figure Name	Data Source	Date	File Name and Description
8.5-11, 12	Geomorphic Reaches and Instream Flow Study Focus Areas overview	R2 Resource Consultants, Inc.	2012-11-05	IFS_RiverSegments_General: General alignment of Susitna River Segments (Upper, Middle, and Lower) as derived from NHD hydrography layer.
		Tetra Tech	2012-04-18	SusitnaRiverReaches: Geomorphic Reach delineations for the Upper, Middle, and Lower Susitna River Segments.
8.5-13 to 22	Instream Flow Study Focus Areas	R2 Resource Consultants, Inc.	2012-11-27	IFS_FocusAreas: Upper and lower extent of Instream Flow Study Focus Areas in the Middle Susitna River Segment.
		R2 Resource Consultants, Inc.	2012-11-26	PRM_MS_MainChannel: Project River Mile (PRM) route for the Susitna River mainstem main channel.
8.5-27	Winter fish habitat use sampling overview	R2 Resource Consultants, Inc.	2012-09-10	IFS_FocusAreaPt_General: General point location of Instream Flow Study Focus Areas in the Middle Susitna River Segment.
		R2 Resource Consultants, Inc.	2012-11-05	IFS_RiverSegments_General: General alignment of Susitna River Segments (Upper, Middle, and Lower) as derived from NHD hydrography layer.
		Tetra Tech	2012-04-18	SusitnaRiverReaches: Geomorphic Reach delineations for the Upper, Middle, and Lower Susitna River Segments.
8.5-28, 29	Winter fish habitat use sampling sites	R2 Resource Consultants, Inc.	2012-11-12	IFS_ActiveFishSampling: Proposed winter locations of active fish sampling in Slough 8A and Whiskers Slough complex.
		R2 Resource Consultants, Inc.	2012-11-27	IFS_FocusAreas: Upper and lower extent of Instream Flow Study Focus Areas in the Middle Susitna River Segment.
		R2 Resource Consultants, Inc.	2012-11-27	IFS_WinterHabUseSites: Proposed locations of winter fish habitat use sampling instruments (intergravel temperature gages, piezometers, stage recorders, and underwater fish observation cameras).
		R2 Resource Consultants, Inc.	2012-11-26	PRM_MS_MainChannel: Project River Mile (PRM) route for the Susitna River mainstem main channel.

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Figure No.	Figure Name	Data Source	Date	File Name and Description
8.5-31	Conceptual layout of 2-D coarse and fine mesh modeling	R2 Resource Consultants, Inc.	2012-11-27	IFS_FocusAreas: Upper and lower extent of Instream Flow Study Focus Areas in the Middle Susitna River Segment.
		R2 Resource Consultants, Inc.	2012-11-13	IFS_HistFlowBreach: Breaching flows based on 1980s studies in Side Channel 11, Slough 11/14, and Whiskers Slough complex.
		R2 Resource Consultants, Inc.	2012-11-28	IFS_Slough_Habitat: Conceptual layout of 2-D coarse and fine mesh modeling within the Whiskers Slough Instream Flow Study Focus Area.
		R2 Resource Consultants, Inc.	2012-11-26	PRM_MS_MainChannel: Project River Mile (PRM) route for the Susitna River mainstem main channel.
8.6-5	Susitna project area meteorological station locations	R2 Resource Consultants, Inc.	2012-11-05	IFS_RiverSegments_General: General alignment of Susitna River Segments (Upper, Middle, and Lower) as derived from NHD hydrography layer.
		R2 Resource Consultants, Inc.	2012-08-10	WR_MonitoringStations_20120810_LL: Water resources monitoring stations.
9.5-1, 9.6-1	Fish distribution and abundance study area	R2 Resource Consultants, Inc.	2012-12-03	FA_DistAbund_Study_Streams: General alignment of fish distribution and abundance study streams in the Upper, Middle, and Lower Susitna River Segments. Derived from NHD hydrography layer.
9.6-7, 8	Winter fish habitat use sampling sites	R2 Resource Consultants, Inc.	2012-11-12	IFS_ActiveFishSampling: Proposed winter locations of active fish sampling in Slough 8A and Whiskers Slough complex.
		R2 Resource Consultants, Inc.	2012-11-27	IFS_FocusAreas: Upper and lower extent of Instream Flow Study Focus Areas in the Middle Susitna River Segment.
		R2 Resource Consultants, Inc.	2012-11-27	IFS_WinterHabUseSites: Proposed locations of winter fish habitat use sampling instruments (intergravel temperature gages, piezometers, stage recorders, and underwater fish observation cameras).
		R2 Resource Consultants, Inc.	2012-11-26	PRM_MS_MainChannel: Project River Mile (PRM) route for the Susitna River mainstem main channel.

Figure No.	Figure Name	Data Source	Date	File Name and Description
9.7-1,2	Salmon escapement study area	LGL Alaska Research	2012-11-28	SuWaLGLAdultSalmonDistributionWatershedMap: Fish escapement study area at watershed level. Includes fishwheel and stationary telemetry locations.
		LGL Alaska Research	2012-11-28	SuWaLGLAdultSalmonDistributionMidRiverMap: Fish escapement study area with middle river telemetry locations.
9.8-1, 2	River productivity study area	R2 Resource Consultants, Inc.	2012-09-10	IFS_FocusAreaPt_General: General point location of Instream Flow Study Focus Areas in the Middle Susitna River Segment.
		R2 Resource Consultants, Inc.	2012-11-05	IFS_RiverSegments_General: General alignment of Susitna River Segments (Upper, Middle, and Lower) as derived from NHD hydrography layer.
		Tetra Tech	2012-04-18	SusitnaRiverReaches: Geomorphic Reach delineations for the Upper, Middle, and Lower Susitna River Segments.
9.10-1	Watana Reservoir fish community and risk of entrainment study area	Microsoft Corporation and its data suppliers	2010	Bing Maps Aerial: This layer contains the Bing Maps aerial imagery web mapping service, which provides worldwide orthographic aerial and satellite imagery.
9.11-1	Watana Dam fish passage study area	Microsoft Corporation and its data suppliers	2010	Bing Maps Aerial: This layer contains the Bing Maps aerial imagery web mapping service, which provides worldwide orthographic aerial and satellite imagery.
9.12-8	Study of Fish Passage Barriers in the Middle and Upper Susitna River			Base map data only.
9.13-1	Aquatic Resources within Access Alignment, Transmission Corridor, and Inundation Area	HDR Alaska, Inc.	2012	Access_Cor_NHD_flowlines_clip: NHD flowlines clipped to access corridor boundaries.
9.16-1	Eulachon study area	HDR Alaska, Inc.	2012	Eulachon_Study_Area: Selection from NHD flowline.
9.17-1	Cook Inlet Beluga Whale study	HDR Alaska, Inc.	2012	Beluga_Study_Area: Digitized from description provided by study lead.
		HDR Alaska, Inc.	2012	Beluga_Critical_Habitat: Digitized from written description provided by National Marine Fisheries Service (NMFS).
		HDR Alaska, Inc.	2012	Eulachon Streams: Extracted from NHD.

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Figure No.	Figure Name	Data Source	Date	File Name and Description
10.5-1	Moose study area	Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-07-09	MOOS_2013_14StudyArea: Moose study area.
		Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-02-17	MOOS_CCA14 and MOOS_CCA7: Continuous moose count areas (repeat survey areas).
		Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-01-25	Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations.
10.6-1	Caribou study area	Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-07-09	CARI_2013_14StudyArea: Caribou study area.
		Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-07-11	CARI_NCH_Range_1999_2010: Total annual Nelchina caribou herd range from 1999–2010.
		Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-07-11	CARI_DCH_Seas_Range: Delta caribou herd total annual range .
		Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-01-25	Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations.
10.7-1	Dall's sheep study area	ABR, Inc.—Environmental Research & Services, in consultation with Alaska Department of Fish and Game	2012-10-31	DASH_2013_14StudyArea: Dall Sheep study area; derived from GMU 13E south of the Denali Hwy. and east of the Parks Hwy.
		ABR, Inc.—Environmental Research & Services	1984	DASH_Hist_Mineral_Licks: Approximate locations of Jay and Watana Creek mineral licks digitized by ABR, Inc. from Tankersley, N. 1984. [APA Doc. No. 1704], pp. 5 and 7.
		Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-01-25	Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations.

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Figure No.	Figure Name	Data Source	Date	File Name and Description
10.8-1	Study area for large carnivores	Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-11-06	LCAR_2013_14StudyArea: Study area for spatial modeling of bear density.
		Alaska Department of Fish and Game	2012-06-01	AWC_SpawningStreams_for_LCAR: Cataloged anadromous waters for bear sampling downstream of the Watana Dam Site. Selected from Anadromous Waters Catalog data.
		Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-01-25	Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations.
10.9-1	Wolverine study area	Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-10-10	WOLV_2013_14StudyArea: Wolverine study area (5-km grid covering the Project Area).
		Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-01-25	Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations.
10.10-1	Terrestrial furbearer study area	ABR, Inc.—Environmental Research & Services, in consultation with Dr. Laura Prugh, University of Alaska Fairbanks, Institute of Arctic Biology	2012-11-03	TFUR_2013_14StudyArea: Terrestrial furbearer study area [10-km (6.2-mi) buffer of Project Area].
10.11-1	Aquatic furbearer study areas	ABR, Inc.—Environmental Research & Services	2012-11-09	AFUR_2013_14StudyArea: Study area for all aquatic furbearers.
		ABR, Inc.—Environmental Research & Services	2012-11-09	BEAV_DownStr_2013_14StudyArea: Downstream beaver study area.
		ABR, Inc.—Environmental Research & Services	2012-11-09	RIOT_MINK_2013_14StreamStArea: Stream survey area for river otter and mink.
10.12-1	Study area for small mammals	ABR, Inc.—Environmental Research & Services	2012-12-03	SMAM_2013_14StudyArea: Small mammal study area.
10.13-1	Bat study area	ABR, Inc.—Environmental Research & Services	2012-10-31	BAT_2013_14StudyArea: Bat study area.

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Figure No.	Figure Name	Data Source	Date	File Name and Description
10.14-1	Study area for surveys of eagles and other raptors	ABR, Inc.—Environmental Research & Services, in consultation with U.S. Fish and Wildlife Service	2012-11-01	RPTR_2013_14StudyArea: Study area for all raptor species.
		ABR, Inc.—Environmental Research & Services, in consultation with U.S. Fish and Wildlife Service	2012-11-03	GOEAonlyDisplay_2013_14StArea: Study area extension for Golden Eagles.
10.15-1	Waterbird study area	ABR, Inc.—Environmental Research & Services, in consultation with U.S. Fish and Wildlife Service and Alaska Department of Fish and Game	2012-11-07	WBRD_2013_14StudyArea: Waterbirds study area (3-mi buffer of Project elements plus selected water bodies).
		ABR, Inc.—Environmental Research & Services	2012-11-09	LSBRD_WBRD_RadarSampleSite: Radar sampling site for waterbirds, landbirds, and shorebirds.
		ABR, Inc.—Environmental Research & Services	2012-11-09	LSBRD_WBRD_RadarSampleArea: Radar sampling area for waterbirds, landbirds, and shorebirds (3-mi buffer of radar sampling site).
10.16-1	Landbird and shorebird study area	ABR, Inc.—Environmental Research & Services, in consultation with U.S. Fish and Wildlife Service	2012-11-05	LSBRD_2013_14StudyArea: Landbirds and shorebirds study area (2-mi buffer of Project elements).
		ABR, Inc.—Environmental Research & Services	2012-11-09	LSBRD_WBRD_RadarSampleSite: Radar sampling site for waterbirds, landbirds, and shorebirds.
		ABR, Inc.—Environmental Research & Services	2012-11-09	LSBRD_WBRD_RadarSampleArea: Radar sampling area for waterbirds, landbirds, and shorebirds (3-mi buffer of radar sampling site).

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Figure No.	Figure Name	Data Source	Date	File Name and Description
10.17-1	Willow Ptarmigan study area	ABR, Inc.—Environmental Research & Services, in consultation with Alaska Department of Fish and Game	2012-11-01	PTAR_2013_14StudyArea: Ptarmigan study area (15-mi buffer of Project Area).
		Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-11-01	PTAR_2013_14Capture: Capture sites and possible alternative capture site for ptarmigan.
		Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-10-28	PTAR_2013_14AerialArea: Aerial search area for ptarmigan (50-mi buffer of capture sites).
		Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-01-25	Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations.
10.18-1	Wood frog study area	ABR, Inc.—Environmental Research & Services	2012-10-31	FROG_2013_14StudyArea: Wood Frog study area.
10.19-1	Study area for evaluation of wildlife habitat use	ABR, Inc.—Environmental Research & Services	2012-11-03	HABEV_2013_14StudyArea: Wildlife habitat evaluation study area [combination of the wildlife habitat mapping areas from the Vegetation and Habitat Mapping Study (Section 11.5) and the Riparian Vegetation Study (Section 11.6)].
10.20-1	Study area for the wildlife harvest analysis	ABR, Inc.—Environmental Research & Services	2012-10-28	HARV_2013_14StudyArea: Wildlife harvest analysis study area; derived from GMUs 13A, 13B, 13E, 14B, 16A, & 20A.
		Alaska Department of Fish and Game, Division of Wildlife Conservation	2012-01-25	Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations.

Figure No.	Figure Name	Data Source	Date	File Name and Description
11.5-1	Study area for vegetation and wildlife habitat mapping for 2013 and 2014 in the Susitna-Watana Hydroelectric Project area	ABR, Inc.—Environmental Research & Services, in consultation with Alaska Energy Authority, U.S. Fish and Wildlife Service, and Alaska Department of Fish and Game	2012-12-04	VEG_2013_14StudyArea: The 4-mile buffer excludes riparian areas along the Susitna River downstream of the dam site (vegetation and wildlife habitats will be mapped in that area in the riparian vegetation study; see Section 11.6).
		BDL WMS: U.S. Geological Survey and Earthstar Geographics LLC	1988 to 1992	Mid Resolution Natural Color (10-30 meter): Landsat mosaic generated by the USGS and a simulated true color Landsat mosaic provide by Earthstar Geographics LLC. Imagery copyright Earthstar Geographics http://www.terracolor.net).
11.6-1	Preliminary riparian vegetation study area for 2013 and 2014 in the Susitna basin	ABR, Inc.—Environmental Research & Services, in consultation with Alaska Energy Authority, U.S. Fish and Wildlife Service, and Alaska Department of Fish and Game	2012-10-31	RIPR_2013_2014StudyArea: Riparian study area: extent of riverine physiography as a potential lateral boundary for the study area (from preliminary mapping efforts in October 2012); the figure will be updated to illustrate the final proposed study area when agreement is reached on lateral and downstream boundaries.
		BDL WMS: U.S. Geological Survey and Earthstar Geographics LLC	1988 to 1992	Mid Resolution Natural Color (10-30 meter): Landsat mosaic generated by the USGS and a simulated true color Landsat mosaic provide by Earthstar Geographics LLC. Imagery copyright Earthstar Geographics http://www.terracolor.net).
11.7-1	Study area for wetlands mapping in 2013 and 2014 in the Susitna-Watana Hydroelectric Project area	ABR, Inc.—Environmental Research & Services, in consultation with Alaska Energy Authority, U.S. Fish and Wildlife Service, and Alaska Department of Fish and Game	2012-12-04	WET_2013_14StudyArea: The 2-mile buffer excludes riparian areas along the Susitna River downstream of the dam site (wetlands will be mapped in that area in the riparian vegetation study; see Section 11.6).
		BDL WMS: U.S. Geological Survey and Earthstar Geographics LLC	1988 to 1992	Mid Resolution Natural Color (10-30 meter): Landsat mosaic generated by the USGS and a simulated true color Landsat mosaic provide by Earthstar Geographics LLC. Imagery copyright Earthstar Geographics http://www.terracolor.net).

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11.8-1	Study area for rare plant surveys in 2013 and 2014 in the Susitna-Watana Hydroelectric Project area	ABR, Inc.—Environmental Research & Services	2012-11-01	RAPL_2013_14StudyArea: Study area for rare plant surveys.
		BDL WMS: U.S. Geological Survey and Earthstar Geographics LLC	1988 to 1992	Mid Resolution Natural Color (10-30 meter): Landsat mosaic generated by the USGS and a simulated true color Landsat mosaic provide by Earthstar Geographics LLC. Imagery copyright Earthstar Geographics http://www.terracolor.net).
12.5-1	Recreation resources study area	URS Alaska	2012-11-19	REC_StudyArea_EffectsAnalysis: Five-mile buffer around the Susitna River from Sunshine to the Denali Highway, all trails accessing project area, and the proposed project facilities.
		URS Portland	2012-10-5	REC_StudyArea_Use: Study area for both Recreation Use Studies and the Recreation Supply and Demand Studies.
		URS Portland	2012-10-8	REC_StudyArea_Facilities: Study area for existing public recreation facilities and carrying capacity.
12.5-3	Survey intercept locations	URS Alaska	2012-11-29	URS_Intercept_PTS: Location of in-person intercepts to gather recreation use data.
12.6-1	Aesthetic resources study area	URS Alaska	2012-9-28	AES_StudyArea: Aesthetics study area bounded by the Denali, Richardson, Glenn, and Parks Highways.
12.7-1	River Recreation - Reaches study area	ERM, Inc.	12/11/2012	REC_Reaches: Generated from NHD data, split at pre-determined Susitna-Watana River miles.
		ERM, Inc.		REC_Points_of_Interest: Conglomerate of select town locations, state highway/NHD river intersection, Dam site.

Figure No.	Figure Name	Data Source	Date	File Name and Description
13.1-1	Property ownership in the vicinity of the study area	Alaska Department of Natural Resources	1992	Boundaries_ANCSAcorp_POLYGON: Depicts Alaska Native Corporation boundaries; based on U.S. census data (compiled by TIGER in 1990).
		U.S. Department of Interior, Bureau of Land Management, Division of Support Services, Branch of Information Resource Management		Spatial Data Management System (SDMS): Layers of land status polygons across Alaska compiled by the BLM, based on spatial information on surveyed land parcels, mining claims, and title plats; provided via Web Map Service (WMS) server.
		U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska	2012	Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server.
13.5-1	Traditional Native language areas in the vicinity of the study area	Alaska Native Language Center, University of Alaska, Fairbanks and University of Alaska, Anchorage Institute of Social and Economic Research	2011	CR_IPLAmap: Indigenous Peoples and Languages of Alaska map of approximate language boundaries (Krauss 1974; revised 1982) produced as digital map polygons, by M. Krauss, G. Holton, J. Kerr, and C. West. Downloaded from the Alaska Native Language Archive.
		U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska	2012	Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server.
13.5-2	Direct and Indirect APEs for the cultural resources study	Northern Land Use Research, Inc.	2012	CR_Indirect: Polygon of areas beyond corridors and impoundment; includes trails and areas with known cultural resources and areas that have not been previously surveyed, but which may experience effects from increased traffic/activity.
		U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska	2012	Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server.

Figure No.	Figure Name	Data Source	Date	File Name and Description
13.5-3	Survey coverage accomplished in the late 1970s and early 1980s	Northern Land Use Research, Inc.	2012	CR_Dixon_1980sEra: Polygons of survey locales, borrow areas, recreation areas, and other locations surveyed for cultural resources, 1979-85, by Dixon et al.; polygons are based on line drawn figures on USGS maps in published documents.
		Northern Land Use Research, Inc.	2012	CR_Greiser_1980sEra: Polygons of survey units surveyed for cultural resources, 1985-86, by Greiser et al.; polygons are based on original aliquot information, hand drawn figures in published documents, and ADNR section grid for Alaska.
		Northern Land Use Research, Inc.	2012	CR_Dixon_1980sEra_concentr: Polygons of survey locales within the impoundment area, as defined in 1979-85, depicting areas of concentrated archaeological survey and testing; polygons are based on line drawn figures on USGS maps in published documents.
		Northern Land Use Research, Inc.	2012	CR_Indirect: Polygon of areas beyond corridors and impoundment; includes trails and areas with known cultural resources and areas that have not been previously surveyed, but which may experience effects from increased traffic/activity.
		U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska	2012	Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server.

Figure No.	Figure Name	Data Source	Date	File Name and Description
13.5-4	Detail of testing accomplished in the late 1970s and early 1980s	Northern Land Use Research, Inc.	2012	CR_Dixon_1980sEra: Polygons of survey locales, borrow areas, recreation areas, and other locations surveyed for cultural resources, 1979-85, by Dixon et al.; polygons are based on line drawn figures on USGS maps in published documents.
		Northern Land Use Research, Inc.	2012	CR_Dixon_1980sEra_concentr: Polygons of survey locales within the impoundment area, as defined in 1979-85, depicting areas of concentrated archaeological survey and testing; polygons are based on line drawn figures on USGS maps in published documents.
		Northern Land Use Research, Inc.	2012	CR_Indirect: Polygon of areas beyond corridors and impoundment; includes trails and areas with known cultural resources and areas that have not been previously surveyed, but which may experience effects from increased traffic/activity.
		U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska	2012	Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server.
13.5-5	Proposed survey methods in the direct and indirect APes	Northern Land Use Research, Inc.	2012	CR_SurveyTypes: Polygons (based on shapefile RSP_Corridors_10_26_12) depicting preliminary survey design, including areas of planned aerial and pedestrian archaeological survey.
		U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska	2012	Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server.

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Figure No.	Figure Name	Data Source	Date	File Name and Description
13.6-1	Paleontological resources in the vicinity of the study area	Northern Land Use Research, Inc.	2012	CR_AHRSpaleontol_2011: Point locations (n=4) of paleontological resources listed in the Alaska Heritage Resources Survey dataset.
		Pacific Rim Geological Consulting, Inc.	2012	Fossil_Locations: Compiled dataset of published point locations (n=100) of paleontological resources in the general study area.
		U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska	2012	Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server.
14.5-1	Federally designated nonrural areas	Stephen R. Braund & Associates	2012-11-06	Federal_nonrural_areas: Digitized by SRB&A.
14.5-2	State of Alaska nonsubsistence areas	Stephen R. Braund & Associates	2012-11-06	State_nonsubsistence_areas: Digitized by SRB&A.
14.5-3	Overview of subsistence study communities		2012-11-06	Base map data only.
16.6-1	Site region faults	Fugro	2011-08-03	Site_Buffer_200k_20110803: 200-kilometer buffer around the proposed Watana Dam Site.
		Fugro	2011-09-22	Faults_Regional_20110922: Fault lines.
		ESRI	2010	States: State boundaries.
		ESRI	2010	Country: Country boundaries.
		ESRI	2009	World Shaded Relief.