

RED RIVER DIVERSION

**FARGO – MOORHEAD METRO FLOOD RISK
MANAGEMENT PROJECT,
FEASIBILITY STUDY, PHASE 4**

**APPENDIX G – COST ESTIMATES
EXHIBIT C – QUANTITY SUMMARY FOR COST
ESTIMATE – FCP MINNESOTA DIVERSION**

**Report for the US Army Corps of Engineers, and the cities of Fargo, ND &
Moorhead, MN**

By: Barr Engineering Co.

FINAL – February 28, 2011

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**APPENDIX G
COST ESTIMATES**

**EXHIBIT C – QUANTITY SUMMARY FOR COST ESTIMATE – FCP
MINNESOTA DIVERSION**

**G-C1.0 QUANTITY SUMMARY FOR COST ESTIMATE -
FCP MINNESOTA DIVERSION**

Attachment G-C1.0 of this Exhibit C presents the quantity summary for cost estimates for the FCP Minnesota diversion.

Barr Engineering Company		Job Number: 34091004.00 400.100	
Project: Fargo-Moorhead Metro Flood Risk Management Project	Computed: MRM	Date: 8/17/2010	
Subject: Phase 4 Cost Estimate			
Task: Cost Estimate - Quantities - MN Short 35K Erosion Control and Diversion-Wide	Sheet: 1	of	1
Status:			

Exhibit G-C1.0 - Quantity Summary for Cost Estimate - FCP MINNESOTA DIVERSION

Item	Item Description	Work Task Group	Folder Item (Work Task)	Project Item Description (Work Task Crew)	QTY	UNIT
1	Lands and Damages	(Corps of Engineers)				
2	Relocations	(Corps of Engineers)				
6	Fish and Wildlife Facilities	(Corps of Engineers)				
8	Roads, Railroads and Bridges	(Corps of Engineers)		(See documentation by others)		
9	Channels and Canals					
		Diversion Channel - Region 2013				
			Site Preparation and Traffic Control	Site Preparation and Traffic Control	1	LS
			Clearing and Grubbing	Clearing and Grubbing	25	AC
			Temporary Erosion and Sedimentation Control	Silt Fence - Furnish and Install	19,575	LF
				Erosion Control Blanket - Furnish and Install	30,173	SY
				Temporary Sedimentation Basins	26,400	BCY
				Rock Checks	42	EA
			Dewatering and Control of Water	Dewatering	56	DAY
				Temporary Storm Sewer Pipe	312	LF
				Control of Water	1	LS
			Strip and Stockpile Topsoil - Channel	Topsoil - Strip	165,647	BCY
				Topsoil - Stockpile	165,647	BCY
			Strip and Stockpile Topsoil - Spoil Berm	Topsoil - Strip and Stockpile	164,686	BCY
			Excavation and Embankment - Channel - Type 1 Non-Saturated Non-Brenna	Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	724,832	BCY
				Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	724,832	BCY
				Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	724,832	BCY
				Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	0	BCY
			Excavation and Embankment - Channel - Type 2 Saturated Non-Brenna	Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	319,757	BCY
				Earthwork - Type 2 Saturated Non-Brenna - Spoil	319,757	BCY
				Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	319,757	BCY
				Earthwork - Type 2 Saturated Non-Brenna - Levee Embankment	0	BCY
			Excavation and Embankment - Channel - Type 3 Oxidized Brenna	Earthwork - Type 3 Oxidized Brenna - Excavate	0	BCY
				Earthwork - Type 3 Oxidized Brenna - Haul	0	BCY
				Earthwork - Type 3 Oxidized Brenna - Spoil	0	BCY
				Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	0	BCY
			Excavation and Embankment - Channel - Type 4 Brenna	Earthwork - Type 4 Brenna - Excavate	0	BCY
				Earthwork - Type 4 Brenna - Haul	0	BCY
				Earthwork - Type 4 Brenna - Spoil	0	BCY
				Earthwork - Type 4 Brenna - Semi Compact and Manage Moisture Content	0	BCY
			Excavation and Embankment - Channel	Earthwork - Haul From No-Spoil Areas	0	BCY
			Temporary Haul Roads	Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	9,753	BCY
				Aggregate Base - Class V - Furnish and Install	5,486	ECY
				Haul Road Maintenance	39	DAY
			Excavation and Embankment - Channel - Lower Bank Protection Riprap Excavation	Earthwork -Type 1 Non-Saturated Non-Brenna - Excavate and Haul	2,319	BCY
				Earthwork -Type 1 Non-Saturated Non-Brenna - Spoil	2,319	BCY
				Earthwork -Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	2,319	BCY
				Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	18,529	BCY
				Earthwork - Type 2 Saturated Non-Brenna - Spoil	18,529	BCY
				Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	18,529	BCY
				Earthwork - Type 3 Oxidized Brenna - Excavate	0	BCY
				Earthwork - Type 3 Oxidized Brenna - Haul	0	BCY
				Earthwork - Type 3 Oxidized Brenna - Spoil	0	BCY
				Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	0	BCY
				Earthwork - Type 4 Brenna - Excavate	0	BCY
				Earthwork - Type 4 Brenna - Haul	0	BCY

Exhibit G-C1.0 - Quantity Summary for Cost Estimate - FCP MINNESOTA DIVERSION

		Earthwork - Type 4 Brenna - Spoil	0	BCY	
		Earthwork - Type 4 Brenna - Semi Compact and Manage Moisture Content	0	BCY	
	Low Flow Channel and Lower Bank Protection	Lower Bank Protection Riprap - Furnish and Install	13,410	CY	
		Lower Bank Protection Geotextile - Furnish and Install	45,717	SY	
		Grade Control Riprap - Furnish and Install	629	CY	
		Grade Control Geotextile - Furnish and Install	567	SY	
	Topsoil Placement - Channel	Topsoil - Install from Stockpile	51,762	BCY	
	Topsoil Placement - Spoil Berm	Topsoil - Install from Stockpile	278,571	BCY	
	Dust Control	Dust Control	105	DAY	
	Restore Local Roadways	Restore Local Haul Roadways - Aggregate Surfacing	1.6	Mile	
		Restore Local Haul Roadways - Bituminous Surfacing	0.5	Mile	
	Site Restoration	Seeding	198	AC	
		Straw Mulch and Disk Anchoring	198	AC	
		Vegetation Establishment and Maintenance	198	AC	
	Snow Removal	Snow Removal	374	HOURS	
	Miscellaneous	Monuments and Markers	1	LS	
	Diversion Channel - Region 2014				
	Site Preparation and Traffic Control	Site Preparation and Traffic Control	1	LS	
	Clearing and Grubbing	Clearing and Grubbing	67	AC	
	Temporary Erosion and Sedimentation Control	Silt Fence - Furnish and Install	49,955	LF	
		Erosion Control Blanket - Furnish and Install	77,000	SY	
		Temporary Sedimentation Basins	89,200	BCY	
		Rock Checks	107	EA	
	Dewatering and Control of Water	Dewatering	189	DAY	
		Temporary Storm Sewer Pipe	795	LF	
		Control of Water	1	LS	
	Strip and Stockpile Topsoil - Channel	Topsoil - Strip	510,220	BCY	
		Topsoil - Stockpile	510,220	BCY	
	Strip and Stockpile Topsoil - Spoil Berm	Topsoil - Strip and Stockpile	596,062	BCY	
	Excavation and Embankment - Channel - Type 1 Non-Saturated Non-Brenna	Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	2,017,993	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	2,017,993	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	2,017,993	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	0	BCY	
	Excavation and Embankment - Channel - Type 2 Saturated Non-Brenna	Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	2,315,829	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Spoil	2,315,829	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	2,315,829	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Levee Embankment	0	BCY	
	Excavation and Embankment - Channel - Type 3 Oxidized Brenna	Earthwork - Type 3 Oxidized Brenna - Excavate	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Haul	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Spoil	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	0	BCY	
	Excavation and Embankment - Channel - Type 4 Brenna	Earthwork - Type 4 Brenna - Excavate	0	BCY	
		Earthwork - Type 4 Brenna - Haul	0	BCY	
		Earthwork - Type 4 Brenna - Spoil	0	BCY	
		Earthwork - Type 4 Brenna - Semi Compact and Manage Moisture Content	0	BCY	
	Excavation and Embankment - Channel Temporary Haul Roads	Earthwork - Haul From No-Spoil Areas	0	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	24,889	BCY	
		Aggregate Base - Class V - Furnish and Install	14,000	ECY	
		Haul Road Maintenance	99	DAY	
	Excavation and Embankment - Channel - Lower Bank Protection Riprap Excavation	Earthwork -Type 1 Non-Saturated Non-Brenna - Excavate and Haul	0	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	0	BCY	
		Earthwork -Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	0	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	53,314	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Spoil	53,314	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	53,314	BCY	
		Earthwork - Type 3 Oxidized Brenna - Excavate	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Haul	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Spoil	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	0	BCY	
		Earthwork - Type 4 Brenna - Excavate	0	BCY	
		Earthwork - Type 4 Brenna - Haul	0	BCY	
		Earthwork - Type 4 Brenna - Spoil	0	BCY	
		Earthwork - Type 4 Brenna - Semi Compact and Manage Moisture Content	0	BCY	
	Low Flow Channel and Lower Bank Protection	Lower Bank Protection Riprap - Furnish and Install	34,222	CY	

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		Lower Bank Protection Geotextile - Furnish and Install	116,667	SY	
		Grade Control Riprap - Furnish and Install	1,605	CY	
		Grade Control Geotextile - Furnish and Install	1,446	SY	
		Topsoil Placement - Channel	161,259	BCY	
		Topsoil Placement - Spoil Berm	945,023	BCY	
		Dust Control	268	DAY	
		Restore Local Roadways	4.0	Mile	
		Restore Local Haul Roadways - Aggregate Surfacing	1.2	Mile	
		Restore Local Haul Roadways - Bituminous Surfacing	669	AC	
		Seeding	669	AC	
		Straw Mulch and Disk Anchoring	669	AC	
		Vegetation Establishment and Maintenance	669	AC	
		Snow Removal	955	HOURS	
		Miscellaneous	1	LS	
		Monuments and Markers			
		Diversion Channel - Region 2015			
		Site Preparation and Traffic Control	1	LS	
		Clearing and Grubbing	154	AC	
		Temporary Erosion and Sedimentation Control	83,733	LF	
		Silt Fence - Furnish and Install	129,067	SY	
		Erosion Control Blanket - Furnish and Install	205,467	BCY	
		Temporary Sedimentation Basins	180	EA	
		Rock Checks	435	DAY	
		Dewatering and Control of Water	1,333	LF	
		Temporary Storm Sewer Pipe	1	LS	
		Control of Water	1,009,173	BCY	
		Strip and Stockpile Topsoil - Channel	1,009,173	BCY	
		Topsoil - Strip	1,521,555	BCY	
		Topsoil - Stockpile			
		Strip and Stockpile Topsoil - Spoil Berm			
		Topsoil - Strip and Stockpile			
		Excavation and Embankment - Channel - Type 1 Non-Saturated Non-Brenna	3,755,851	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	3,755,851	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	3,755,851	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	0	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	0	BCY	
		Excavation and Embankment - Channel - Type 2 Saturated Non-Brenna	11,065,135	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	11,065,135	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Spoil	11,065,135	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	0	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Levee Embankment	0	BCY	
		Excavation and Embankment - Channel - Type 3 Oxidized Brenna	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Excavate	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Haul	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Spoil	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	0	BCY	
		Excavation and Embankment - Channel - Type 4 Brenna	1,370,400	BCY	
		Earthwork - Type 4 Brenna - Excavate	1,370,400	BCY	
		Earthwork - Type 4 Brenna - Haul	1,370,400	BCY	
		Earthwork - Type 4 Brenna - Spoil	1,370,400	BCY	
		Earthwork - Type 4 Brenna - Compact and Manage Moisture Content	0	BCY	
		Excavation and Embankment - Channel	41,719	BCY	
		Earthwork - Haul From No-Spoil Areas	23,467	ECY	
		Temporary Haul Roads	167	DAY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment			
		Aggregate Base - Class V - Furnish and Install			
		Haul Road Maintenance			
		Excavation and Embankment - Channel - Lower Bank Protection Riprap Excavation	0	BCY	
		Earthwork -Type 1 Non-Saturated Non-Brenna - Excavate and Haul	0	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	0	BCY	
		Earthwork -Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	54,190	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	54,190	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Spoil	54,190	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Excavate	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Haul	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Spoil	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	0	BCY	
		Earthwork - Type 4 Brenna - Excavate	33,924	BCY	
		Earthwork - Type 4 Brenna - Haul	33,924	BCY	
		Earthwork - Type 4 Brenna - Spoil	33,924	BCY	
		Earthwork - Type 4 Brenna - Semi Compact and Manage Moisture Content	33,924	BCY	
		Lower Bank Protection Riprap - Furnish and Install	57,363	CY	
		Lower Bank Protection Geotextile - Furnish and Install	195,556	SY	
		Grade Control Riprap - Furnish and Install	2,691	CY	
		Grade Control Geotextile - Furnish and Install	2,424	SY	

Exhibit G-C1.0 - Quantity Summary for Cost Estimate - FCP MINNESOTA DIVERSION

			Topsoil Placement - Channel	Topsoil - Install from Stockpile	321,616	BCY	
			Topsoil Placement - Spoil Berm	Topsoil - Install from Stockpile	2,209,112	BCY	
			Dust Control	Dust Control	450	DAY	
			Restore Local Roadways	Restore Local Haul Roadways - Aggregate Surfacing	6.7	Mile	
				Restore Local Haul Roadways - Bituminous Surfacing	2.0	Mile	
			Site Restoration	Seeding	1,541	AC	
				Straw Mulch and Disk Anchoring	1,541	AC	
				Vegetation Establishment and Maintenance	1,541	AC	
			Snow Removal	Snow Removal	1,600	HOURS	
			Miscellaneous	Monuments and Markers	1	LS	
			Diversion Channel - Region 2016				
			Site Preparation and Traffic Control	Site Preparation and Traffic Control	1	LS	
			Clearing and Grubbing	Clearing and Grubbing	91	AC	
			Temporary Erosion and Sedimentation Control	Silt Fence - Furnish and Install	41,841	LF	
				Erosion Control Blanket - Furnish and Install	64,493	SY	
				Temporary Sedimentation Basins	121,733	BCY	
				Rock Checks	90	EA	
			Dewatering and Control of Water	Dewatering	258	DAY	
				Temporary Storm Sewer Pipe	666	LF	
				Control of Water	1	LS	
			Strip and Stockpile Topsoil - Channel	Topsoil - Strip	645,138	BCY	
				Topsoil - Stockpile	645,138	BCY	
			Strip and Stockpile Topsoil - Spoil Berm	Topsoil - Strip and Stockpile	850,784	BCY	
			Excavation and Embankment - Channel - Type 1 Non-Saturated Non-Brenna	Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	2,600,814	BCY	
				Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	2,600,814	BCY	
				Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	2,600,814	BCY	
				Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	0	BCY	
			Excavation and Embankment - Channel - Type 2 Saturated Non-Brenna	Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	6,510,722	BCY	
				Earthwork - Type 2 Saturated Non-Brenna - Spoil	6,510,722	BCY	
				Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	6,510,722	BCY	
				Earthwork - Type 2 Saturated Non-Brenna - Levee Embankment	0	BCY	
			Excavation and Embankment - Channel - Type 3 Oxidized Brenna	Earthwork - Type 3 Oxidized Brenna - Excavate	795,024	BCY	
				Earthwork - Type 3 Oxidized Brenna - Haul	795,024	BCY	
				Earthwork - Type 3 Oxidized Brenna - Spoil	795,024	BCY	
				Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	795,024	BCY	
			Excavation and Embankment - Channel - Type 4 Brenna	Earthwork - Type 4 Brenna - Excavate	1,817,877	BCY	
				Earthwork - Type 4 Brenna - Haul	1,817,877	BCY	
				Earthwork - Type 4 Brenna - Spoil	1,817,877	BCY	
				Earthwork - Type 4 Brenna - Semi Compact and Manage Moisture Content	1,817,877	BCY	
			Excavation and Embankment - Channel	Earthwork - Haul From No-Spoil Areas	1,701,963	BCY	
			Temporary Haul Roads	Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	20,846	BCY	
				Aggregate Base - Class V - Furnish and Install	11,726	CY	
				Haul Road Maintenance	83	DAY	
			Excavation and Embankment - Channel - Lower Bank Protection Riprap Excavation	Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	0	BCY	
				Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	0	BCY	
				Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	0	BCY	
				Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	780	BCY	
				Earthwork - Type 2 Saturated Non-Brenna - Spoil	780	BCY	
				Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	780	BCY	
				Earthwork - Type 3 Oxidized Brenna - Excavate	0	BCY	
				Earthwork - Type 3 Oxidized Brenna - Haul	0	BCY	
				Earthwork - Type 3 Oxidized Brenna - Spoil	0	BCY	
				Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	0	BCY	
				Earthwork - Type 4 Brenna - Excavate	44,103	BCY	
				Earthwork - Type 4 Brenna - Haul	44,103	BCY	
				Earthwork - Type 4 Brenna - Spoil	44,103	BCY	
				Earthwork - Type 4 Brenna - Semi Compact and Manage Moisture Content	44,103	BCY	
			Low Flow Channel and Lower Bank Protection	Lower Bank Protection Riprap - Furnish and Install	28,664	CY	
				Lower Bank Protection Geotextile - Furnish and Install	97,717	SY	
				Grade Control Riprap - Furnish and Install	1,345	CY	
				Grade Control Geotextile - Furnish and Install	1,211	SY	
			Topsoil Placement - Channel	Topsoil - Install from Stockpile	207,663	BCY	
			Topsoil Placement - Spoil Berm	Topsoil - Install from Stockpile	1,288,260	BCY	
			Dust Control	Dust Control	225	DAY	

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	Restore Local Roadways	Restore Local Haul Roadways - Aggregate Surfacing	3.3	Mile	
		Restore Local Haul Roadways - Bituminous Surfacing	1.0	Mile	
	Site Restoration	Seeding	913	AC	
		Straw Mulch and Disk Anchoring	913	AC	
		Vegetation Establishment and Maintenance	913	AC	
	Snow Removal	Snow Removal	800	HOURS	
	Miscellaneous	Monuments and Markers	1	LS	
	Diversion Channel - Region 2017				
	Site Preparation and Traffic Control	Site Preparation and Traffic Control	1	LS	
	Clearing and Grubbing	Clearing and Grubbing	61	AC	
	Temporary Erosion and Sedimentation Control	Silt Fence - Furnish and Install	29,973	LF	
		Erosion Control Blanket - Furnish and Install	46,200	SY	
		Temporary Sedimentation Basins	81,467	BCY	
		Rock Checks	64	EA	
	Dewatering and Control of Water	Dewatering	173	DAY	
		Temporary Storm Sewer Pipe	477	LF	
		Control of Water	1	LS	
	Strip and Stockpile Topsoil - Channel	Topsoil - Strip	404,198	BCY	
		Topsoil - Stockpile	404,198	BCY	
	Strip and Stockpile Topsoil - Spoil Berm	Topsoil - Strip and Stockpile	596,808	BCY	
	Excavation and Embankment - Channel - Type 1 Non-Saturated Non-Brenna	Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	2,144,380	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	2,144,380	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	2,144,380	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	0	BCY	
	Excavation and Embankment - Channel - Type 2 Saturated Non-Brenna	Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	3,635,893	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Spoil	3,635,893	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	3,635,893	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Levee Embankment	0	BCY	
	Excavation and Embankment - Channel - Type 3 Oxidized Brenna	Earthwork - Type 3 Oxidized Brenna - Excavate	147,721	BCY	
		Earthwork - Type 3 Oxidized Brenna - Haul	147,721	BCY	
		Earthwork - Type 3 Oxidized Brenna - Spoil	147,721	BCY	
		Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	147,721	BCY	
	Excavation and Embankment - Channel - Type 4 Brenna	Earthwork - Type 4 Brenna - Excavate	591,681	BCY	
		Earthwork - Type 4 Brenna - Haul	591,681	BCY	
		Earthwork - Type 4 Brenna - Spoil	591,681	BCY	
		Earthwork - Type 4 Brenna - Compact and Manage Moisture Content	591,681	BCY	
	Excavation and Embankment - Channel	Earthwork - Haul From No-Spoil Areas	0	BCY	
	Temporary Haul Roads	Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	14,933	BCY	
		Aggregate Base - Class V - Furnish and Install	8,400	ECY	
		Haul Road Maintenance	60	DAY	
	Excavation and Embankment - Channel - Lower Bank Protection Riprap Excavation	Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	0	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	0	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	0	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	31	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Spoil	31	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	31	BCY	
		Earthwork - Type 3 Oxidized Brenna - Excavate	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Haul	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Spoil	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	0	BCY	
		Earthwork - Type 4 Brenna - Excavate	31,519	BCY	
		Earthwork - Type 4 Brenna - Haul	31,519	BCY	
		Earthwork - Type 4 Brenna - Spoil	31,519	BCY	
		Earthwork - Type 4 Brenna - Semi Compact and Manage Moisture Content	31,519	BCY	
	Low Flow Channel and Lower Bank Protection	Lower Bank Protection Riprap - Furnish and Install	20,533	CY	
		Lower Bank Protection Geotextile - Furnish and Install	70,000	SY	
		Grade Control Riprap - Furnish and Install	963	CY	
		Grade Control Geotextile - Furnish and Install	868	SY	
	Topsoil Placement - Channel	Topsoil - Install from Stockpile	129,444	BCY	
	Topsoil Placement - Spoil Berm	Topsoil - Install from Stockpile	871,562	BCY	
	Dust Control	Dust Control	161	DAY	
	Restore Local Roadways	Restore Local Haul Roadways - Aggregate Surfacing	2.4	Mile	
		Restore Local Haul Roadways - Bituminous Surfacing	0.7	Mile	
	Site Restoration	Seeding	611	AC	

Exhibit G-C1.0 - Quantity Summary for Cost Estimate - FCP MINNESOTA DIVERSION

		Straw Mulch and Disk Anchoring	611	AC	
		Vegetation Establishment and Maintenance	611	AC	
		Snow Removal	573	HOURS	
		Miscellaneous	1	LS	
		Diversion Channel - Region 2018			
		Site Preparation and Traffic Control	1	LS	
		Clearing and Grubbing	203	AC	
		Temporary Erosion and Sedimentation Control	123,868	LF	
			190,931	SY	
		Temporary Sedimentation Basins	271,067	BCY	
		Rock Checks	266	EA	
		Dewatering and Control of Water	574	DAY	
		Temporary Storm Sewer Pipe	1,972	LF	
		Control of Water	1	LS	
		Strip and Stockpile Topsoil - Channel	1,356,161	BCY	
		Topsoil - Strip	1,356,161	BCY	
		Strip and Stockpile Topsoil - Spoil Berm	1,981,915	BCY	
		Topsoil - Strip and Stockpile			
		Excavation and Embankment - Channel - Type 1 Non-Saturated Non-Brenna	6,982,546	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	6,982,546	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	6,982,546	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	6,982,546	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	0	BCY	
		Excavation and Embankment - Channel - Type 2 Saturated Non-Brenna	5,599,732	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	5,599,732	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Spoil	5,599,732	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	5,599,732	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Levee Embankment	0	BCY	
		Excavation and Embankment - Channel - Type 3 Oxidized Brenna	5,301,701	BCY	
		Earthwork - Type 3 Oxidized Brenna - Excavate	5,301,701	BCY	
		Earthwork - Type 3 Oxidized Brenna - Haul	5,301,701	BCY	
		Earthwork - Type 3 Oxidized Brenna - Spoil	5,301,701	BCY	
		Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	5,301,701	BCY	
		Excavation and Embankment - Channel - Type 4 Brenna	2,167,628	BCY	
		Earthwork - Type 4 Brenna - Excavate	2,167,628	BCY	
		Earthwork - Type 4 Brenna - Haul	2,167,628	BCY	
		Earthwork - Type 4 Brenna - Spoil	2,167,628	BCY	
		Earthwork - Type 4 Brenna - Compact and Manage Moisture Content	2,167,628	BCY	
		Excavation and Embankment - Channel	0	BCY	
		Earthwork - Haul From No-Spoil Areas	0	BCY	
		Temporary Haul Roads	61,715	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	34,715	ECY	
		Aggregate Base - Class V - Furnish and Install	34,715	ECY	
		Haul Road Maintenance	247	DAY	
		Excavation and Embankment - Channel - Lower Bank Protection Riprap Excavation	1,579	BCY	
		Earthwork -Type 1 Non-Saturated Non-Brenna - Excavate and Haul	1,579	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	1,579	BCY	
		Earthwork -Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	1,579	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	0	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Spoil	0	BCY	
		Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	0	BCY	
		Earthwork - Type 3 Oxidized Brenna - Excavate	34,344	BCY	
		Earthwork - Type 3 Oxidized Brenna - Haul	34,344	BCY	
		Earthwork - Type 3 Oxidized Brenna - Spoil	34,344	BCY	
		Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	34,344	BCY	
		Earthwork - Type 4 Brenna - Excavate	78,558	BCY	
		Earthwork - Type 4 Brenna - Haul	78,558	BCY	
		Earthwork - Type 4 Brenna - Spoil	78,558	BCY	
		Earthwork - Type 4 Brenna - Semi Compact and Manage Moisture Content	78,558	BCY	
		Low Flow Channel and Lower Bank Protection	84,858	CY	
		Lower Bank Protection Riprap - Furnish and Install	289,289	SY	
		Lower Bank Protection Geotextile - Furnish and Install	3,981	CY	
		Grade Control Riprap - Furnish and Install	3,586	SY	
		Grade Control Geotextile - Furnish and Install	432,388	BCY	
		Topsoil Placement - Channel	2,905,687	BCY	
		Topsoil Placement - Spoil Berm	666	DAY	
		Dust Control	9.9	MIle	
		Restore Local Roadways	3.0	MIle	
		Restore Local Haul Roadways - Aggregate Surfacing	2,033	AC	
		Restore Local Haul Roadways - Bituminous Surfacing	2,033	AC	
		Seeding	2,033	AC	
		Straw Mulch and Disk Anchoring	2,033	AC	
		Vegetation Establishment and Maintenance	2,033	AC	
		Snow Removal	2,367	HOURS	

Exhibit G-C1.0 - Quantity Summary for Cost Estimate - FCP MINNESOTA DIVERSION

	Miscellaneous	Monuments and Markers	1	LS		
	Hydraulic Structure - Red River Control Structure - Site Work					
	Site Preparation	Site Preparation and Traffic Control	1	LS		
	Temporary Erosion and Sedimentation Control	Silt Fence - Furnish and Install	18,000	LF		
		Erosion Control Blanket - Furnish and Install	79,860	SY		
		Temporary Sedimentation Basins	22,000	BCY		
		Floating Silt Curtain	600	LF		
	Clearing and Grubbing	Clearing and Grubbing	26	AC		
	Strip and Stockpile Topsoil	Topsoil - Strip	266,200	BCY		
		Topsoil - Stockpile	266,200	BCY		
	Temporary Haul Roads	Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	37,000	BCY		
		Aggregate Base - Class V - Furnish and Install	13,167	ECY		
		Haul Road Maintenance	60	DAY		
	Coffering - Steel Sheet pile	Sheet Piling - Furnish Material	9,000	SF		
		Sheet Piling - Unload Sheeting	7	EA		
		Sheet Piling - Set up Rig	2	EA		
		Sheet Piling - Drive Sheets	200	EA		
		Sheet Piling - Cut Sheets	400	EA		
		Control of Water	1	LS		
	Embankment - Temporary Levee	Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	21,352	BCY		
		Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	21,352	BCY		
		Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	21,352	BCY		
		Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	21,352	BCY		
	Excavation and Embankment - Channel Realignment	Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	367,010	BCY		
		Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	367,010	BCY		
		Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	73,706	BCY		
		Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	293,304	BCY		
		Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	305,632	BCY		
		Earthwork - Type 2 Saturated Non-Brenna - Spoil	305,632	BCY		
		Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	305,632	BCY		
		Earthwork - Type 2 Saturated Non-Brenna - Levee Embankment	0	BCY		
		Earthwork - Type 3 Oxidized Brenna - Excavate	483,789	BCY		
		Earthwork - Type 3 Oxidized Brenna - Haul	483,789	BCY		
		Earthwork - Type 3 Oxidized Brenna - Spoil	483,789	BCY		
		Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	483,789	BCY		
		Earthwork - Type 4 Brenna - Excavate	152,096	BCY		
		Earthwork - Type 4 Brenna - Haul	152,096	BCY		
		Earthwork - Type 4 Brenna - Spoil	152,096	BCY		
		Earthwork - Type 4 Brenna - Compact and Manage Moisture Content	152,096	BCY		
		Earthwork - Haul From No-Spoil Areas	678,433	BCY		
	Dewatering and Control of Water	Dewatering and Control of Water	202	DAY		
		Temporary Storm Sewer Pipe	300	LF		
		Control of Water	1	LS		
	Electrical Utilities	Electrical Utilities	5,000	LF		
	Channel Grade Control System	Channel Grade Control System	0	LS		
	Restore Local Roadways	Restore Local Haul Roadways - Aggregate Surfacing	2.0	Mile		
		Restore Local Haul Roadways - Bituminous Surfacing	1.0	Mile		
	Dust Control	Dust Control	60	DAY		
	Topsoil Placement	Topsoil - Install from Stockpile	266,200	BCY		
	Site Restoration	Seeding	165	AC		
		Straw Mulch and Disk Anchoring	165	AC		
		Vegetation Establishment and Maintenance	165	AC		
	Miscellaneous Features	Signage	1	LS		
		Safety Features - Miscellaneous	0	LS		
		Chain link Fence	3,000	LF		
		Fence Vehicle Gates	4	EA		
	Snow Removal	Snow Removal	640	HOURS		
	Hydraulic Structure - Red River Control Structure - Structure					
	Earthwork - Structural	Earthwork - Structural Excavation	44,855	BCY		
		Earthwork - Structural Haul	44,855	BCY		
		Earthwork - Structural Embankment	44,855	BCY		
	Gated Control Structure	structure length	182	LF		
	Steel Piles	Steel Piles - Furnish Material	13,442	LF		
		Steel Piles - Set up Rig	2	EA		
		Steel Piles - Unload Piles	25	EA		

Exhibit G-C1.0 - Quantity Summary for Cost Estimate - FCP MINNESOTA DIVERSION

		Steel Piles - Weld Splices	0	EA	
		Steel Piles - Drive Piling	13,442	LF	
		Steel Piles - Cut Offs	0	EA	
		Steel Piles - Pile Test	8	EA	
	Concrete - Footing	Concrete - Footing - Form Strip and Cure	1,791	SF	
		Concrete - Footing - Pour	2,257	CY	
		Concrete - Footing - 5% Waste	113	CY	
	Concrete - Piers	Concrete - Pier - Build Forms	2,560	SF	
		Concrete - Pier - Assemble and Modify Forms	4	EA	
		Concrete - Pier - Form, Strip and Cure	37,501	SF	
		Concrete - Pier - Pour	3,953	CY	
		Concrete - Walls, Piers and Elevated Deck - 5% Waste	198	CY	
	Concrete - Elevated Deck	Concrete - Elevated Deck - Form Strip and Cure	2,689	SF	
		Concrete - Elevated Deck - Pour	128	CY	
		Concrete - Walls, Piers and Elevated Deck - 5% Waste	6	CY	
	Steel Reinforcement Bars	Steel Reinforcement Bars - Furnish and Install	475,140	LB	
		Steel Reinforcement Bars - Hoist	475,140	LB	
	Hydraulic Gates - Steel	Hydraulic Gates - Steel - Furnish	6,900	SF	
		Hydraulic Gates - Steel - Install	3	EA	
		Hydraulic Gate Hoist - Furnish and Install	3	EA	
	Bulkheads - Steel	Bulkheads - Steel - Furnish	1	LS	
	Bridge Railing	Bridge Railing - Furnish and Install	364	LF	
	Sheet Piling	Sheet Piling - Furnish	3,640	SF	
		Sheet Piling - Unload Sheeting	3	EA	
		Sheet Piling - Set up Rig	2	EA	
		Sheet Piling - Drive Sheets	122	EA	
		Sheet Piling - Cut Sheets	244	EA	
	Structural Aggregate Backfill	Aggregate Base - Class V - Furnish and Install	6,667	CY	
	Walls	structure length	720		
	Steel Piles	Steel Piles - Furnish Material	37,688	LF	
		Steel Piles - Set up Rig	2	EA	
		Steel Piles - Unload Piles	69	EA	
		Steel Piles - Weld Splices	364	EA	
		Steel Piles - Drive Piling	37,688	LF	
		Steel Piles - Cut Offs	0	EA	
		Steel Piles - Pile Test	20	EA	
	Concrete - Footing	Concrete - Footing - Form Strip and Cure	8,021	SF	
		Concrete - Footing - Pour	2,413	CY	
		Concrete - Footing - 5% Waste	121	CY	
	Concrete - Elevated Deck	Concrete - Elevated Deck - Form Strip and Cure	12,503	SF	
		Concrete - Elevated Deck - Pour	708	CY	
		Concrete - Walls, Piers and Elevated Deck - 5% Waste	35	CY	
	Concrete - Walls	Concrete - Walls - Build Forms	2,560	SF	
		Concrete - Walls - Assemble and Modify Forms	4	EA	
		Concrete - Walls - Form, Strip and Cure	49,109	SF	
		Concrete - Walls - Pour	8,355	CY	
		Concrete - Walls, Piers and Elevated Deck - 5% Waste	418	CY	
	Steel Reinforcement Bars	Steel Reinforcement Bars - Furnish and Install	1,100,839	LB	
		Steel Reinforcement Bars - Hoist	1,100,839	LB	
	Bridge Railing	Bridge Railing - Furnish and Install	1,440	LF	
	Sheet Piling	Sheet Piling - Furnish Material	14,400	SF	
		Sheet Piling - Unload Sheeting	10	EA	
		Sheet Piling - Set up Rig	2	EA	
		Sheet Piling - Drive Sheets	480	EA	
		Sheet Piling - Cut Sheets	960	EA	
	Structural Aggregate Backfill	Aggregate Base - Class V - Furnish and Install	4,413	CY	
	Riprap	Select Granular Aggregate - Furnish and Install	9,592	CY	
		Riprap - Furnish and Install	19,183	CY	
		Riprap - Chink Mortar - Furnish and Install		CY	
	Fish Passage System	Fish Passage System - Furnish and Install	216,800	SF	
		Hydraulic Gates - Steel - Furnish	450	SF	
		Hydraulic Gates - Steel - Install	3	EA	
		Hydraulic Gate Hoist - Furnish and Install	3	EA	
		Steel Bulkhead	1	LS	
		Wall Extension	1	LS	
	Miscellaneous Features	Mechanical - Miscellaneous	1	LS	
		Electrical - Miscellaneous	1	LS	
		Safety Features - Miscellaneous	1	LS	

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		SCADA (Supervisory Control and Data Acquisition) System	1	LS	
		Ice Control Measure - Furnish and Install	3,000	LF	
		Debris Control Measure - Furnish and Install	300	LF	
		Debris Maintenance Equipment	1	LS	
		Equipment Storage Shed	5,000	SF	
		Winter Channel Heating Coil System	0	LS	
		Hydraulic Structure - Red River Control Structure - Inlet Weir to Diversion			
	Earthwork - Structural	Earthwork - Structural Excavation	46,667	BCY	
		Earthwork - Structural Haul	46,667	BCY	
		Earthwork - Structural Embankment	46,667	BCY	
	Sheet Piling	Sheet Piling - Furnish	87,997	SF	
		Sheet Piling - Unload Sheeting	59	EA	
		Sheet Piling - Set up Rig	4	EA	
		Sheet Piling - Drive Sheets	969	EA	
		Sheet Piling - Cut Sheets	1,938	EA	
	Riprap	Select Granular Aggregate - Furnish and Install	15,556	CY	
		Riprap - Furnish and Install	31,111	CY	
	Miscellaneous	SCADA (Supervisory Control and Data Acquisition) System	1	LS	
		Hydraulic Structure - Red River Control Structure - Inlet Weir to Extension Channel			
	Earthwork - Structural	Earthwork - Structural Excavation	19,444	BCY	
		Earthwork - Structural Haul	19,444	BCY	
		Earthwork - Structural Levee Embankment	19,444	BCY	
	Temporary Haul Roads	Aggregate Base - Class V - Furnish and Install	500	ECY	
	Sheet Piling	Sheet Piling - Furnish	35,400	SF	
		Sheet Piling - Unload Sheeting	24	EA	
		Sheet Piling - Set up Rig	4	EA	
		Sheet Piling - Drive Sheets	350	EA	
		Sheet Piling - Cut Sheets	700	EA	
	Riprap	Select Granular Aggregate - Furnish and Install	6,481	CY	
		Riprap - Furnish and Install	12,963	CY	
	Miscellaneous	SCADA (Supervisory Control and Data Acquisition) System	1	LS	
		Hydraulic Structure - Small Drain Structure (3)			
	Excavation and Embankment - Channel	Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	36,000	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	36,000	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	36,000	BCY	
	Concrete - Walls	Concrete - Walls - Build Forms	9,000	SF	
		Concrete - Walls - Assemble and Modify Forms	3	EA	
		Concrete - Walls - Form, Strip and Cure	9,000	SF	
		Concrete - Walls - Pour	600	CY	
		Concrete - Walls, Piers and Elevated Deck - 5% Waste	30	CY	
	Steel Reinforcement Bars	Steel Reinforcement Bars - Furnish and Install	90,000	LBS	
		Steel Reinforcement Bars - Hoist	90,000	LBS	
	Erosion Protection	Geotextile Fabric - Furnish and Install	1,770	SY	
		Riprap - Furnish and Install	1,185	CY	
		Hydraulic Structure - Side Channel Inlet 1X72" (7)			
	Excavation and Embankment - Channel	Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	84,000	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	84,000	BCY	
		Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	84,000	BCY	
	Manhole	96" Reinforced Concrete Manhole	217	LF	
		72" Reinforced Concrete Pipe	1,750	LF	
	Concrete - Walls	Concrete - Walls - Build Forms	8,400	SF	
		Concrete - Walls - Assemble and Modify Forms	7	EA	
		Concrete - Walls - Form, Strip and Cure	8,400	SF	
		Concrete - Walls - Pour	560	CY	
		Concrete - Walls, Piers and Elevated Deck - 5% Waste	28	CY	
	Steel Reinforcement Bars	Steel Reinforcement Bars - Furnish and Install	84,000	LBS	
		Steel Reinforcement Bars - Hoist	84,000	LBS	
	Erosion Protection	Geotextile Fabric - Furnish and Install	763	SY	
		Riprap - Furnish and Install	378	CY	
	Gates	72" Flap Gates	7	EA	
		Hydraulic Structure - Side Channel Inlet 2X72" (11)			
	Excavation and Embankment - Channel	Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	132,000	BCY	

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			Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	132,000	BCY		
			Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	132,000	BCY		
		Manhole	96" Reinforced Concrete Manhole	682	LF		
			72" Reinforced Concrete Pipe	5,720	LF		
		Concrete - Walls	Concrete - Walls - Build Forms	17,325	SF		
			Concrete - Walls - Assemble and Modify Forms	11	EA		
			Concrete - Walls - Form, Strip and Cure	17,325	SF		
			Concrete - Walls - Pour	1,155	CY		
			Concrete - Walls, Piers and Elevated Deck - 5% Waste	58	CY		
		Steel Reinforcement Bars	Steel Reinforcement Bars - Furnish and Install	173,250	LBS		
			Steel Reinforcement Bars - Hoist	173,250	LBS		
		Erosion Protection	Geotextile Fabric - Furnish and Install	1,265	SY		
			Riprap - Furnish and Install	638	CY		
		Gates	72" Flap Gates	22	EA		
		Hydraulic Structure - Outlet to Red River of the North					
		Excavation and Embankment - Channel	Earthwork - Type 1 Non-Saturated Non-Brenna - Excavate and Haul	16,093	BCY		
			Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	16,093	BCY		
			Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	15,593	BCY		
			Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	500	BCY		
			Earthwork - Type 2 Saturated Non-Brenna - Excavate and Haul	7,537	BCY		
			Earthwork - Type 2 Saturated Non-Brenna - Spoil	7,537	BCY		
			Earthwork - Type 2 Saturated Non-Brenna - Semi Compact and Manage Moisture Content	7,537	BCY		
			Earthwork - Type 2 Saturated Non-Brenna - Levee Embankment	0	BCY		
			Earthwork - Type 3 Oxidized Brenna - Excavate	15,251	BCY		
			Earthwork - Type 3 Oxidized Brenna - Haul	15,251	BCY		
			Earthwork - Type 3 Oxidized Brenna - Spoil	15,251	BCY		
			Earthwork - Type 3 Oxidized Brenna - Semi Compact and Manage Moisture Content	0	BCY		
			Earthwork - Type 4 Brenna - Excavate	0	BCY		
			Earthwork - Type 4 Brenna - Haul	0	BCY		
			Earthwork - Type 4 Brenna - Spoil	0	BCY		
			Earthwork - Type 4 Brenna - Compact and Manage Moisture Content	0	BCY		
		Earthwork - Structural	Earthwork - Structural Excavation	0	BCY		
			Earthwork - Structural Haul	0	BCY		
			Earthwork - Structural Levee Embankment	0	BCY		
		Temporary Haul Roads	Aggregate Base - Class V - Furnish and Install	222	ECY		
		Erosion Protection	Riprap - Furnish and Install	9,722	CY		
			Select Granular Aggregate - Furnish and Install	4,861	CY		
			Floating Silt Curtain	800	LF		
		Miscellaneous	SCADA (Supervisory Control and Data Acquisition) System	1	LS		
		Hydraulic Structure - Diversion Channel Drop Structure (Near Dilworth)					
			structure length	810	LF		
		Sheet Piling	Sheet Piling - Furnish	10,280	SF		
			Sheet Piling - Unload Sheeting	7	EA		
			Sheet Piling - Set up Rig	1	EA		
			Sheet Piling - Drive Sheets	540	EA		
			Sheet Piling - Cut Sheets	1,080	EA		
		Riprap	Riprap - Furnish and Install	7,200	CY		
			Geotextile - Furnish and Install	10,800	SY		
		11 Levees and Floodwalls and Floodproofing					
		Tie-Back Levee	Temporary Erosion and Sedimentation Control	Silt Fence - Furnish and Install	45,000	LF	
				Temporary Sedimentation Basins	22,670	BCY	
			Strip and Stockpile Topsoil - Channel	Topsoil - Strip	165,000	BCY	
				Topsoil - Stockpile	165,000	BCY	
			Excavation and Embankment - Tie-Back Levee	Earthwork - Tie Back Levee - Haul from diversion excavation	575,000	BCY	
				Earthwork - Type 1 Non-Saturated Non-Brenna - Spoil	575,000	BCY	
				Earthwork - Type 1 Non-Saturated Non-Brenna - Semi Compact and Manage Moisture Content	0	BCY	
				Earthwork - Type 1 Non-Saturated Non-Brenna - Levee Embankment	575,000	BCY	
			Topsoil Placement	Topsoil - Install from Stockpile	165,000	BCY	
				Aggregate Base - Class V - Furnish and Install	49,083	ECY	

Exhibit G-C1.0 - Quantity Summary for Cost Estimate - FCP MINNESOTA DIVERSION

			Site Restoration	Seeding	170	AC		
				Straw Mulching and Disk Anchoring	170	AC		
				Vegetation Establishment and Maintenance	170	AC		
			Floodwall	Floodwall	1	LS		
14	Recreation Facilities	(Corps of Engineers)						
30	Planning, Engineering and Design	(Corps of Engineers)						
31	Construction Management	(Corps of Engineers)						
	Other	(Corps of Engineers)						