

WORK AUTHORIZATION NO. 2

ENGINEERING FEE ESTIMATE

NO.	TASK AND DESCRIPTION	PRINCIPAL	PROJECT MANAGER	SENIOR ENGINEER	ENGINEER	GRADUATE ENGINEER	SENIOR ENGINEER TECH	CADD-DESIGN TECH	3-PERSON SURVEY CREW	CLERICAL	TOTAL
<b>I. GENERAL MANAGEMENT / COORDINATION</b>											
1	Develop & Monitor Project Work Schedule	2	8	16	16	16	0	0	0	8	66
2	Meet w/ Client Representatives (Bi-Weekly) (52 Weeks)	52	52	52	52	52	0	0	0	26	286
3	Meet w/ Utility Companies (10 Companies @ 2 Meetings Each)	20	20	20	20	20	0	0	0	10	110
4	Meet w/ Hidalgo County Irrig Dist No. 2 (5 meetings)	5	5	5	5	5	0	0	0	5	30
5	Meet w/ Property Owners (20 Property Owners)	10	20	10	0	0	0	0	0	20	60
6	Obtain Right-of-Entries for Env, ROW, Topo Surveys (30 Property Owners)	2	8	8	0	0	0	0	4	8	30
7	Meet w/ HCRMA to Review Planned Projects in Vicinity (2 Meetings)	2	4	4	0	0	0	0	0	2	12
8	Meet w/ TxDOT to Review Planned Projects in Vicinity (2 Meetings)	2	4	4	0	0	0	0	0	2	12
9	Perform Quality Control & Quality Assurance (QCQA) (52 weeks)	26	52	52	0	0	0	0	0	2	132
<b>SUBTOTAL - GENERAL MANAGEMENT / COORDINATION</b>		<b>121</b>	<b>173</b>	<b>171</b>	<b>93</b>	<b>93</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>83</b>	<b>738</b>
<b>II. PRELIM ENGINEERING &amp; SCHEMATIC DESIGN</b>											
<b>Route and Design Studies</b>											
1	Develop Preliminary Construction Cost Estimates	2	4	8	8	8	0	0	0	2	32
2	Develop Design Criteria & Prepare Design Summary Report	2	8	16	16	16	0	0	0	2	60
3	Conduct Design Concept Conference	4	8	8	8	0	0	0	0	4	32
4	Determine Minimum Right-of-Way Requirements	1	2	4	8	8	4	4	0	0	31
5	Develop Proposed Typical Sections	0	2	4	4	4	4	4	0	0	22
6	Establish Existing Horizontal Alignments	0	1	2	4	4	4	4	0	0	19
7	Establish Proposed Horizontal Alignments (3 Alternates)	1	2	4	8	16	16	16	0	0	63
8	Determine Drainage Outfall Requirements	1	2	4	8	16	16	16	0	0	63
9	Determine Additional R.O.W. Requirements	0	2	4	8	16	16	16	0	0	62
10	Develop ENGINEERING SUMMARY REPORT	2	4	8	16	16	8	8	0	4	66
<b>Field Survey</b>											
11	Collect and Review Existing County Data	1	2	4	8	8	0	0	0	4	27
12	Coordinate Field Survey	1	8	16	16	8	0	0	16	4	69
13	Establish Horiz and Vert Control BM's @ 1,000-Ft Intervals (Est 24 BM's)	1	4	8	8	8	16	16	48	0	109
14	Create 11'x17" Control Data Plan Sheet	0	2	4	8	8	16	16	0	0	54
15	Stake Exist Centerline @ 1,000-ft & PC's, PT's on ROW both sides (Est 60 Pts)	1	2	0	0	0	4	4	24	0	35
16	Cross Sections @ 100-Foot Intervals (Project Length - 19,300-Ft Length)	2	4	8	8	8	16	16	120	0	182
17	Obtain driveway x-sections to extend 10-ft outside R.O.W. (85 Driveways)	1	2	2	2	2	0	0	80	0	89
18	Inventory public access, commercial and private driveway by type.	0	1	2	2	2	0	0	8	0	15
19	Obtain Side Drain data (centerline station, size, length, flow lines, etc.)	0	1	2	2	2	0	0	24	0	31
20	Obtain culvert's size of structures, type, skew angle, material.	0	1	2	2	2	0	0	16	0	23
21	Locate and obtain culvert inlet and outlet FL's elev, top of HW's, aprons, edge of pvmt, and CL	0	1	2	2	2	0	0	16	0	23
22	Obtain profiles and x-sections @ 100-ft intervals 500-ft upstream and downstream of structures	1	2	2	2	2	0	0	16	0	25
23	Determine type of wingwall or S.E.T. or barrier rails, (end treatment, location, type, length, height)	0	1	1	1	1	0	0	8	0	12
24	Obtain pictures of culvert barrels and outlet and inlet view to the R.O.W.	0	1	1	1	1	0	0	8	2	14
25	Locate and obtain mailbox inventory within ROW (type-identify as single, dbl, or mult) incl photos	0	1	1	1	1	0	0	8	2	14
26	Locate and obtain sign inventory (type) for all signs within R.O.W. and intersectoins incl photos	0	1	1	1	1	0	0	8	2	14
27	Locate any other topographic feature within project area (within 10-ft outside of ROW)	1	2	2	2	2	0	0	16	0	25
28	Pick up any items that may be an obstruction to the proposed construction (i.e. Gas Markers, etc.)	0	1	1	1	1	0	0	8	0	12
29	Process ASCII files to develop DTM	1	2	4	8	8	16	16	0	0	55

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	<b>Right-of-Way Survey</b>										
30	Contact "One Call" to request marking of underground utilities.	0	1	2	2	2	0	0	0	2	9
31	Request existing utility information from local utility companies.	1	2	4	8	8	4	4	0	4	35
32	Perform surveying for horiz location of "Flagged" underground utilities & visible overhead lines	1	2	4	8	8	0	0	32	0	55
33	Measure downs on utilities (top of key on gas line valves)	0	1	2	2	2	0	0	8	0	15
34	Measure downs on utilities (top of key on water line valves)	0	1	2	2	2	0	0	8	0	15
35	Measure downs on utilities (FL, size of tie-ins and direction of flow for SS manholes)	0	1	2	2	2	0	0	8	0	15
36	Measure downs on utilities (FL, size of pipe for irrigation systems)	0	1	2	2	2	0	0	8	0	15
37	Measure downs on utilities (FL, size of pipe for inverted siphons of irrigation systems)	0	1	2	2	2	0	0	8	0	15
38	Obtain most current existing right-of-way information (plats, deeds, ownership info)	1	4	8	8	8	0	0	0	4	33
39	Survey existing roadway right-of-way and adjoining parcel lines in project coordinate system	1	2	4	4	8	16	16	32	0	83
40	Provide Microstation file to show exist ROW, parcel property lines, legal info, ownership info	1	4	4	4	4	16	16	0	0	49
41	Stake prop ROW and Drain Easements for utility relocation	1	2	4	4	4	8	8	16	0	47
	<b>Final Design Schematic</b>			4							
42	Prepare final design schematic of preferred alignment in accordance w/ Project Design Criteria	4	8	16	32	32	48	48	0	0	188
	<b>Preliminary Hydrologic / Hydraulic Analysis and Design</b>										
43	Collect and Review Existing County Drainage Studies or Reports in project vicinity	1	4	8	16	16	0	0	0	2	47
44	Develop Drainage Area Maps, Hydrologic Data, Discharge and Stage-Discharge Determination	2	4	8	16	32	64	64	0	0	190
45	Prepare stormwater pollution prevention plan (SW3P) following NPDES general permit reqmnts	0	1	2	4	8	16	16	0	0	47
46	Prepare project Hydraulic Report documenting hydrologic analysis & hydraulic computations	1	4	8	16	16	8	8	0	0	61
	<b>SUBTOTAL - PRELIM ENGINEERING &amp; SCHEMATIC DESIGN</b>	<b>37</b>	<b>117</b>	<b>211</b>	<b>295</b>	<b>327</b>	<b>316</b>	<b>316</b>	<b>544</b>	<b>38</b>	<b>2197</b>

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<b>PLANS SPECIFICATIONS &amp; ESTIMATE</b>											
1	Title Sheet (1 Sheet)	1	1	2	4	4	8	8		1	29
2	Index of Sheets (1 Sheet)	0	1	2	4	4	8	8		0	27
3	Project Layout (8 Sheets)	1	4	8	16	16	64	64		0	173
4	Horizontal & Vertical Survey Control (4 sheets)	1	2	4	8	8	32	32		1	88
5	Existing Typical Sections (1 Sheets)	0	1	2	4	4	8	8		0	27
6	Proposed Typical Sections (3 Sheets)	1	4	8	16	16	24	24		0	93
7	Develop General Notes and Specs (8 Sheets)	1	4	8	16	16	8	8		2	63
8	Earthwork & Cross-Sections (40 Sheets)	2	4	8	16	16	80	80		0	206
9	Figure Quantities & Prepare E&Q Sheets (4 Sheets)	1	8	16	16	16	32	32		0	121
10	Sequence of Construction (2 Sheets)	1	4	8	8	8	16	16		0	61
11	Traffic Control Plan General Notes (1 Sheet)	1	1	2	4	4	16	16		0	44
12	Traffic Control Plan - 3 Phases (36 Sheets)	2	8	16	32	32	288	288		0	666
13	Traffic Control Plan Details (3 Sheets)	1	2	4	8	8	24	24		0	71
14	Roadway Data Sheets (6 Sheets)	2	4	4	8	8	48	48		0	122
15	Plan & Profile (Roadway) (32 Sheets)	4	32	32	64	64	256	256		0	708
16	Intersection Details (5 Sheets)	1	4	8	16	16	40	40		0	125
17	Driveway & Turnout Details (1 Sheet)	0	1	2	4	8	8	8		0	31
18	Hydraulic Data Sheets (4 Sheets)	2	4	8	16	16	16	16		0	78
19	Perform Hydraulic Design (Roadway)	4	16	32	64	64	64	64		0	308
20	Drainage Area Maps (8 Sheets)	1	4	8	16	16	64	64		0	173
21	Utility & Drainage Sheets (32 Sheets)	4	8	16	32	32	288	288		0	668
22	Outfall Details (4 Sheets)	1	2	4	8	16	32	32		0	95
23	Cross Culvert Profiles (10 Sheets)	1	2	4	8	16	80	80		0	191
24	Irrigation Crossing Structure Plan & Profile (2 Sheets)	0	1	2	4	8	16	16		0	47
25	Irrigation Structures Details (4 Sheets)	1	2	4	8	16	32	32		0	95
26	Pavement Marking Layout & Details (8 Sheets)	2	4	8	16	32	64	64		0	190
27	Small Sign Layout & Details (8 Sheets)	2	4	8	16	32	64	64		0	190
28	Signing Summary Sheets (2 Sheets)	0	1	2	4	8	16	16		0	47
29	Traffic Signals Layouts (2 Sheets)	1	1	2	4	8	16	16		0	48
30	Illumination Layouts (2 Sheets)	0	1	2	4	8	16	16		0	47
31	Develop Construction Time Estimate	1	4	8	16	16	0	0		0	45
32	Provide interim drawing submittals (8 sets)	1	4	8	16	16	8	8		0	61
33	Provide Final Drawings on 11"x17" Mylars (234 Sheets)	1	4	8	16	16	8	8		4	65
<b>SUB-TOTAL - PLANS SPECIFICATIONS &amp; ESTIMATE</b>		<b>45</b>	<b>147</b>	<b>280</b>	<b>480</b>	<b>500</b>	<b>1720</b>	<b>1720</b>	<b>0</b>	<b>0</b>	<b>660</b>
<b>TOTAL PROFESSIONAL SERVICES MANHOURS</b>		<b>200</b>	<b>437</b>	<b>640</b>	<b>880</b>	<b>988</b>	<b>2060</b>	<b>2060</b>	<b>548</b>	<b>129</b>	<b>7938</b>